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LIGHT ⁘ HEAT ⁘ POWER ⁘ BYE-PRODUCTS

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Editorial Notes.

The Victim of Isolation.

WRITING in the first issue of the "JOURNAL" published during the present year, Mr. J. W. Napier, of Alloa, stated that, because of conditions and circumstances which materially differ, Scotland has not whole-heartedly accepted the Education Scheme of the Institution of Gas Engineers; and he added the warning that the scheme will not be a complete success unless provision is made for the particular individual who, under the present rules, is made the victim of isolation, and is prevented from attending classes at a recognized school. Scotland is, of course, not the only part in which this difficulty of isolation has cropped up, though—geographical conditions being what they are—it may possibly be more general there than elsewhere. In the present issue of the "JOURNAL" there is to be found conclusive proof of difficulty in England also; the case presented being of such a character as to call for earnest consideration.

This consideration Mr. John Terrace, speaking as President of the Institution of Gas Engineers, has promised it shall have, so that, between now and the end of June, when he will be relinquishing his present position, every possible effort may be made to get matters adjusted in some satisfactory manner. That being so, it is not our desire to prejudge the case in any way, but merely to draw attention to the facts as they have been stated—to a large extent by those who have been in the closest touch with the working of the Education Scheme. Admittedly the scheme represents a great enterprise, the bringing into being of which involved monumental labours on the part of Mr. F. W. Goodenough, as Chairman, Mr. Walter Hole, as Organizing Secretary, and others; and no alterations that may now be found desirable will lessen the debt of gratitude the industry owes them for the evolution of a scheme which marks so great a step forward.

On various occasions there have been references at meetings to difficulties having been met in connection with the large number of prospective candidates who are unable to attend either approved schools or schools where tuition of the standard required can be obtained, and for whom it is impossible to get classes started within reasonable distance; and now the matter in its several bearings has been fully discussed by the Southern Association of Gas Engineers and Managers, through the instrumentality of the Gas Representatives on the South-Eastern Education Committee. Some two years ago, District Gas Education Committees were appointed to provide additional facilities for the guidance of prospective candidates, and in order to overcome such difficulties as had already arisen in the working of the scheme; and recently, at a special meeting, the eight members of the District Gas Education Committee covering the South-Eastern area decided that, as a Committee, they had been unable to carry out successfully the duties required of them, owing to the great difficulty of complying with the existing rules of the Education Scheme. They accordingly decided to recommend "drastic re-organization," and suggested "that the Institution of Gas Engineers should be an examining body only."

A report will be found in later pages of this number of the "JOURNAL" of the discussion which took place upon the presentation to the Association of this report and recommendation; and it will be seen that, by resolution, the Association expressed themselves as "deeply concerned to learn of the general dissatisfaction and discontent that is reported to exist in the South of England with respect to the Institution's Education Scheme." The resolution voiced the opinion that "the time has now arrived when the Education Scheme should be amended and modified in order to render possible the taking of the Institution's examinations by all properly trained gas engineers or students in gas engineering, irrespective of the methods by which they may have obtained their technical education." Such an amendment would presumably admit tuition by correspondence, which has so generally been advocated as a means of bringing succour to the victims of isolation. From the early consideration of the subject by the Institution Council, which Mr. Terrace has promised, good will result; in the meantime we exhort prospective students not to be discouraged.

To the 150-Million C.Ft. Undertaking.

LAST Friday, the President of the Southern Association of Gas Engineers and Managers, Mr. W. E. Dean, addressed the members at their Annual General Meeting, directing his observations particularly towards those of his colleagues responsible for comparatively small undertakings, which he defined as sending out less than 150 million c.ft. per annum. Mr. Dean is specially qualified, as Engineer, Manager, and Secretary of the Exmouth Gas Company, to discourse to that section of the gas community, since his undertaking's output of upwards of 127 millions is by no means evenly spread over twelve months of the year and eighteen hours of the day, for the influx of summer visitors to that delightful resort at times accounts for 40 p.ct. of the daily output between 11 a.m. and 1.15 p.m. Thus the problem with which he has grappled since 1914 is no easy one, and has not been facilitated by works on a congested site without rail or water transport amenities nearby. Nevertheless, the Exmouth Company has been able to produce the excellent increase of 85 p.ct.—from 70 to 130 million c.ft.—in out-

put in the last decade; and this has been achieved by the wise combination of modern invention, science, and sound trading methods. Further, that Mr. Dean has confidence that the same trinity will be no less efficacious in future, is proved by his curve of estimated output for many years to come—it ascends a slightly steeper gradient than during the ten "fat years" that have passed.

It is modern invention that has enabled the Exmouth Company to overcome the difficulties of the congested site. For instance, in 1927 it was necessary to reorganize the wet purification system and to remodel the works mains, which gave trouble at times of peak load; and the station meter was no longer equal to its task. A Connersville meter was decided upon; and this freed so much space that room can be found, in addition, for the "P. & A." extractor and two-million rotary washer-scrubbers where the wet meter and only one washer-scrubber stood before. The diagram which illustrates the alternative arrangements is striking, and, in conjunction with Mr. Dean's testimony as to the accuracy of the Connersville meter, cannot fail to direct attention to this comparatively new departure. A further economy in space, coupled with an increase in efficiency, was effected by substituting two half-million units of Holmes super-horizontal water-tube condensers for old under-capacity annular condensers.

Silica, too, which a few years ago was apt to be regarded as a requisite of large works, has played a part in making things easier at Exmouth. High heats became more and more necessary as the demand mounted, and horizontal settings of retorts of fireclay or siliceous material did not stand up to the task. Accordingly Mr. Dean tried a system of, so to speak, strutting a setting with two silica segmental retorts in the danger zone; and this expedient was found to increase the life of the whole bed. The first two silica retorts were put to work in October, 1924, and have been in constant use since then. Silica retorts now represent normal practice at Exmouth; and, providing care is exercised in heating-up and letting-down, it is considered that the extra cost is negligible when the longer life is taken into account.

Modern invention, again, is likely to help the Company out of a somewhat awkward predicament as regards the increased gas storage which is so necessary. The reference is to a 1-million c.ft. waterless holder of which the foundation drawings have already been prepared. At present the site for new works cannot be definitely decided, for there is some local opposition to the foreshore area which Mr. Dean referred to in his address, and the matter was recently argued before the Director of Gas Administration at a Board of Trade Inquiry. However, it would appear that the river foreshore is the most suitable site from the gas service point of view; and if the works are to go there, then a waterless holder will be the selection, owing to the comparatively small load which it will bring to bear upon foundations in sand and shingle. It is proposed to erect the holder on a concrete piled raft surrounded by a ring of circumferential sheet piles to prevent the tidal river gradually drawing away such solid support as exists.

The President's belief in scientific control, and the extent to which he puts it into practice, should be an encouragement to the engineers of smaller works who think such refinements are not for them. Having seen an elaborate system of retort house control on a large works, Mr. Dean intends to devise a modified form applicable to his circumstances; and meanwhile much is done by regular supervision of retort house conditions. In this he is helped by two Junior Chemists whose discovery was the outcome of a simple matter of co-operation with the Headmaster of the local secondary school.

But despite all that modern invention and science can do, the output curve of the Exmouth Company would not have displayed that 85 p.ct. upward tendency unless those responsible for its policy had realized that rule-of-thumb methods were as obsolete outside the works as within. Sound trading methods, therefore, are employed in their dealings with the public; and so we find it recorded that the result of modernizing the showrooms was a considerable expansion of business. But in this direction there is to be no wavering from the dictates of modernity; and the premises are to be remodelled and brought into line with the best examples of to-day. Exhibitions and demonstrations also play their part in educating the public to a realization of gas service. The latter comprises the marketing of coke; and at Exmouth coke is expected neither to lie in the works yard nor to sell itself. For years close attention has been paid to working-up local sales; every opportunity being taken to advertise the many uses to which it can be applied. And this policy is supported—indeed, rendered possible—by the care devoted to its manufacture and preparation for the consumer. The Exmouth mentality is one of "assurance that the march of progress will be fully maintained if our united efforts are directed to bringing to the notice of the public the national and personal benefits offered by the industry."

The Limitless Field.

Soon must come the time—if, indeed, it has not already arrived—to regard as past history the abnormal increases in gas outputs which have characterized recent weeks. Spring is, perhaps grudgingly, taking the place of weather conditions under which gas "sells itself;" and we feel inclined to pause, and ask, "What of the future?" In time to come, no doubt, we shall look back upon the services rendered by gas during the early part of 1929 as comparable with what the industry did for the country during the great war; and everyone knows the vital character of that service. On each occasion gas engineers struggled desperately against great odds; and they struggled successfully—not only they, but their staffs, and the employees down to the humblest grade. We are proud of what the industry did from 1914 to 1918; and we are proud of what it has accomplished, in circumstances of much difficulty, in 1929. What we desire is that each one connected with the industry shall feel this pride, and so hold his head high. In this way, and in this way only, will the industry be granted by public opinion that recognition of services rendered which is its due.

But we digress. There is an end, for the time being, at any rate, of those staggering increases in gas output of 40 p.ct., 50 p.ct., and even more, of which we have lately been hearing. What is to take their place? It is unthinkable that those responsible for the distribution side of the industry will be content to return to the comparatively trifling increases—satisfactory as they appeared to be then—to which they had been previously accustomed. The cold weather has forced the industry to make use of all its resources; and there must be a general wish to continue some of the extra activity that has been involved. Those who have this feeling will find—as the industry has so often found before—a real friend in Mr. F. W. Goodenough, C.B.E., who has stepped in just at the right moment to point out once again the innumerable uses to which gas can be put in industry. As has been quite recently pointed out, there is hardly a manufacturing process into which, at one stage or another, heat does not enter; and there are few instances in which gas does not provide the best and most convenient method of heating.

Now Mr. Goodenough is nothing if he is not thorough; and the paper referred to—which was presented last Wednesday to the Institute of Fuel—was full of suggestions for the distribution department on the look-out for new business. Beyond thus roughly indicating its scope, we will not now say more of the paper than this: For the large undertakings with mains of ample size there are applications of gas involving huge quantities; while for other works less favourably circumstanced there are processes unlikely to prove too severe a tax. And all undertakings, both large and small, may find suggestions of additional uses for gas—in that coveted extra gas-consuming appliance on the premises of an existing customer.

Believing, therefore, that its dissemination throughout the industry will be of real help, we are making arrangements to ensure this by including it in the issue of "The Gas Salesman" Supplement which will be published with next week's issue of the "Journal," and which, in addition, enjoys an extensive separate circulation among the distribution staffs of gas undertakings throughout the country. We are hopeful of being able to publish at the same time a selection from the fifty or so lantern slides by which the paper was illustrated; and there will be appended a full report of the discussion to which it gave rise.

Rationalization of Industry.

There has of late been a good deal of talk about "rationalization," the outcome of which was sketched in a recent address by Sir Mark Webster Jenkinson (Financial Controller on the Board of Vickers), who pointed out that rationalization, by an increase in the consumption and use of commodities as the result of a reduction in production cost, should effect an increase in the number employed in an industry; but before this could be effected there must, of necessity, be a displacement of labour following the closing-down of inefficient works and the introduction of labour-saving machinery. For this reason, any general rationalization of industry could only be carried out with the co-operation of the trade unions and the Government; otherwise the number of unemployed would be a source of trouble which would prejudice public opinion and increase the burden of taxation which industry had to bear. Rationalization of industry, which, ultimately, would increase consuming capacity and put industry on a scientifically managed basis, must eventually improve the conditions of labour; and therefore it behoved both the Government and the labour leaders to assist in devising means to bridge the unemployment gulf which would open in the process of the change-over.

Numbering of Shares.

That the numbering of each individual share in a company does not add any safeguard against fraud is argued by Mr. P. D. Leake, F.C.A., in an article in the "Financial Times," in the course of which he remarks that the cost of this numbering to the companies themselves and to stockholders must be not less than £500,000 a year. This large sum could, he says, be saved, without the running of any additional risk, if, instead of attempting to distinguish each share by its appropriate number, each separate share certificate bore its appropriate number. This would be recorded in a suitable space provided in the register of members. Without wishing to question the authority of Mr. Leake, the idea does occur to one that the numbering of a share certificate to correspond with a number in the register of members would alone offer no check upon the contents of the certificate. Is the numbering of the shares themselves as small a safeguard? In the case of companies paying dividends—doubtless the smaller proportion of the whole number—the total amount distributed would furnish a check upon the number of shares in circulation; and where there is no dividend, the matter is, of course, of less importance. The natural safeguards against fraud are, Mr. Leake says: (1) To make the documents of title as difficult to forge as possible; and here more attention might with advantage be given to the use of engraved certificates, and the modern devices for perforating numbers and amounts. (2) To take good care that the documents of title originally issued by a company represent no more than the total number of shares into which the capital of the company is divided; and thereafter to see that existing certificates are cancelled or reduced in value by endorsement, simultaneously with the signing of new certificates for an equal number of shares.

A Reflection on Water Pipes

It is the water pipes which have burst about which we hear so much. Nothing is ever known of the pipes which would have burst, had it not been that gas was available to prevent their doing so. And one burst water pipe—especially if in the neighbourhood of the drawing-room ceiling—is equal to a very big addition to the gas bill.

And on Gas Fires.

During times of a biting Nor'-easter, with the mercury resolutely digging itself in somewhere below the thirties, "an apple a day" is not likely to "keep the doctor away." But a gas fire is—particularly if used in a bedroom. We should not care to have to hazard a guess at the number of doctors' visits which gas fires have obviated during the recent spell of Arctic weather. Once again, it is cases of illness that one hears of; and nothing is ever learnt of the suffering that has been prevented by the constant, healthy warmth of an efficient gas fire. Is this boon to humanity to be measured by the addition of a few shillings, or even a few pounds, to the gas bill?

PERSONAL.

Out of five candidates who applied for the post, Mr. JOHN GRAYSTON, Deputy Gas Engineer and Manager, Hinckley, has been appointed Chief Assistant Engineer of the Plymouth Corporation Gas Undertaking. Mr. Grayston is 27 years of age.

Mr. J. PEMBERTON, of the Stoke-on-Trent City Gas Department, has been appointed Gas Distribution Superintendent for the city. Prior to the amalgamation of the gas undertakings in the district, he was on the staff of the British Gas Light Company's station.

Mr. C. S. DAVIES has been appointed Assistant Gas Engineer to the Chesterfield Corporation Gas Department.

Mr. W. S. LOVELL, Assistant Manager of the Leicester Corporation Gas Department, is retiring at the end of this month, after 53 years' service, first with the Leicester Gas Company, and then with the Corporation.

OBITUARY.

The death is announced of Mr. WILLIAM MINSHAW, of Woodfield Road, King's Heath, Birmingham. In 1865 he entered the employ of the Birmingham and Stafford Gas Company, and when the Birmingham Corporation took over the city's gas undertaking, he was appointed to the staff, and for 26 years was senior ledger clerk until his retirement in 1912.

News has just been received of the death, under tragic circumstances, of Mr. KENNETH WARD BALDWICK, who until August, 1927, was Superintendent of the Gillingham Station of the Rochester, Chatham, and Gillingham Gas Company. He left there in 1927 on his appointment as Engineer to the Lobitos Oil Company, Lobitos, Peru. Mr. Baldwick was drowned last month (the date is not given) in attempting to save the life of the wife of the doctor to the camp. The lady was in difficulties while bathing. Her husband and Mr. Baldwick were able to rescue her, but in doing so the latter lost his life. The deceased was 37 years of age, and was a son of the Town Clerk of Nelson, Lancs. After serving his articles at the gas undertaking of that Corporation, he became Assistant Superintendent at the Neepsend Station of the Sheffield Gas Company, which he left in February, 1919, on his appointment with the Rochester, Chatham, and Gillingham Company. He was very popular with the staff and men, and took an active interest in the Sports Club, of which he became Captain. The news of his untimely death has cast quite a shadow in the offices and the works of the Company. Mr. Baldwick leaves a widow and a small son. The sympathy of her husband's many friends in the gas industry will be extended to the widow in the peculiarly sad circumstances.

FORTHCOMING ENGAGEMENTS.

[*Secretaries of Gas and Kindred Organizations are asked to assist in making this diary of events as complete and useful as possible by sending the earliest intimation of all meetings.*]

March 22.—LONDON AND SOUTHERN DISTRICT JUNIOR GAS ASSOCIATION.—Meeting at the Westminster Technical Institute, S.W. 1. Paper by Mr. S. G. Watson.

March 23.—SCOTTISH JUNIOR GAS ASSOCIATION (WESTERN DISTRICT).—Visit to Dawsholm Gas-Works, Glasgow.

March 27.—BRITISH COMMERCIAL GAS ASSOCIATION.—Annual Meeting of members for the Northern District, at 4 o'clock, at the Gas Offices, Grainger Street West, Newcastle-upon-Tyne.

April 12.—NORTH BRITISH ASSOCIATION OF GAS MANAGERS.—Spring Meeting at Alloa.

May 10.—BRITISH COMMERCIAL GAS ASSOCIATION.—Manchester District Conference at Southport.

May 10.—SOUTHERN DISTRICT ASSOCIATION OF GAS ENGINEERS AND MANAGERS.—Visit to Exmouth.

May 16.—MIDLAND ASSOCIATION OF GAS ENGINEERS.—Visit to Shrewsbury.

May 16.—WALES AND MONMOUTHSHIRE DISTRICT INSTITUTION OF GAS ENGINEERS AND MANAGERS.—Meeting at Cardiff.

May 24.—NORTH OF ENGLAND GAS MANAGERS' ASSOCIATION.—Annual Meeting.

Sept. 12.—NORTH BRITISH ASSOCIATION OF GAS MANAGERS.—Annual Meeting at St. Andrews.

NATIONAL GAS COUNCIL.

Central Executive Board.

A Meeting of the Central Executive Board of the National Gas Council took place on March 12 at 28, Grosvenor Gardens, S.W. 1. The chair was taken by Mr. William Cash, F.C.A. (Vice-Chairman).

It was reported that the Gas Undertakings Bill had received the second reading in the House of Lords on Feb. 28. Amendments appearing on the order paper were reported and discussed. It was also reported that a meeting of the Conjoint Conference had taken place on Feb. 28, the following matters being dealt with:

(*a*) *Appointment of Chairman.*—Owing to the resignation of Sir James Devonshire on account of ill-health, Mr. W. B. Woodhouse, General Manager of the Yorkshire Electric Power Company, was appointed Chairman of the Conference.

(*b*) *Local Government Bill.*—It was reported that the amendment pressed for by the Conference, providing that public utility undertakings should retain the same rights to obtain compensation in the case of highway reconstruction against county councils as they to-day enjoyed against rural and urban district councils, would be moved in the House of Lords on the Report Stage of the Bill.

(*c*) *Bridges Bill.*—It was reported that as a result of the efforts of the Conjoint Conference the following additional clause in the Bill, which was moved in the Committee Stage in the House of Lords by Lord Bledisloe had been inserted in the Bill—viz.:

> Before making an order under this section for the reconstruction or improvement of a bridge, the Minister shall take into consideration the desirability of special facilities or accommodation being provided for carrying across the bridge the mains, pipes, cables, or wires of public utility undertakings:
>
> Provided that in any case where the provision of facilities or accommodation greater than those available in the bridge before reconstruction or improvement would increase the cost of the reconstruction or improvement, he shall have regard to the amount of any contribution towards such cost which any public utility undertaking may be willing to make.

Area Gas Supply.

It was reported that the Area Gas Supply Committee appointed by the National Fuel and Power Committee had decided to send out questionnaires to gas and coke oven undertakings respectively. They had sent the Council a copy of the questionnaire relating to the gas industry, asking the Council to urge its members to complete the form and return it to the Board of Trade.

The action of the officers in circularizing their members, asking them to co-operate in this matter with the Board of Trade, was approved by the Central Executive Board.

A further letter from the Secretary of the Area Gas Supply Committee, dealing with the question of the submission of evidence by the gas industry, was considered.

British Industries Fair, Birmingham.

A vote of thanks was passed to the Council's representatives who served on the Joint Committee which contributed so much to the success of this Exhibition, and also to Mr. H. C. Smith, Hon. Secretary of the Committee. The thanks of the Board were also conveyed to Mr. A. W. Smith, of the Birmingham Corporation Gas Department, and to Mr. Rogers, Hon. Secretary of the Gas Industries Section.

The Annual General Meeting of the National Gas Council was fixed to take place on Tuesday afternoon, May 14, at the Hotel Cecil.

GAS STOCK AND SHARE MARKET.

[For Stock and Share List, see later page.]

There was a further falling off in business on the Stock Exchange last week, and, apart from a marked recovery in the leading gilt-edged stocks, brought about by the removal of Bank Rate fears, there is little change of importance to record. Some activity was noticeable in the Foreign Bond market, and improvements were recorded in Chinese and Brazilian bonds; but there is little doubt that the Budget and the General Election uncertainty militated against any general improvement in prices. The only excitement during the week was occasioned by the dealers' opposition to the proposed General Electric issue, and it is doubtful whether the last-minute postponement of the issue will improve matters.

Movements were unimportant in the Gas Section. Only two improvements were recorded. Liverpool 5 p.ct. ordinary was marked up ¾ to 94-95 at the local exchange, and Croydon maximum 1 point to 83-86. Otherwise all the variations were in a downward direction; the most noticeable being a fall of 3 points in European ordinary to 19-21, and 2s. in Primitiva ordinary to 31s.-33s. Imperial Continental ordinary remained unchanged, but there was considerable activity in this stock at the end of the week. An important dividend announcement is that of the Alliance and Dublin Company—viz., £7 12s. 6d. p.ct. per annum for the half-year to December, as compared with £7 p.ct. per annum for the corresponding half-year.

The following transactions were recorded during the week:

Monday.—Aldershot 4 p.ct. pref. 75, British 5 p.ct. deb. 95, Cape Town 8¾, Continental Union 123, 126, European 20, 20¼, 20⅜, 20½, 20⅝, 21, 21¼, 21½, 21¾, 22, 22¼, 22½, 22¾, 23, Gas Light and Coke 18s. 10½d., 19s., 19s. 1½d., 4 p.ct. pref. 76, 77, 3 p.ct. deb. 60, 5 p.ct. deb. 99½, 101¼, Imperial Continental 381, 383, 385, 387, 389, 390, 391, 392, 394, 395, 399, Maidstone 5 p.ct. 128, 128½, Portsmouth 4 p.ct. 117½, Primitiva 31s. 9d., 32s., 32s. 6d., 32s. 9d., 33s., 33s. 3d., 33s. 6d., 33s. 7½d., 34s., South Metropolitan 106½, 107¼, Tottenham 102¼, 102½, Wandsworth new 104, 104½, 105. Supplementary prices, Eastbourne "B" 103½, Farnham 6 p.ct. pref. £10 18s., Metropolitan (of Melbourne) 91⅞, North Middlesex 6 p.ct. pref. 108½, Tottenham 5 p.ct. pref. 89.

Tuesday.—British 119, 120, Commercial 98, 3 p.ct. deb. 56½, Croydon sliding-scale 110½, European 19½, 19¾, 20, 20¼, 20⅛, 20⅜, 20½, 20⅝, Gas Light and Coke 18s. 9d., 18s. 10½d., 19s., 19s. 1¼d., 3½ p.ct. max. 64, 4 p.ct. pref. 76, 76⅜, 3 p.ct. deb. 59, 5 p.ct. deb. 99, 101¼, Imperial Continental 372, 374, 375, 377, 378, 380, 381, 382, 385, 389, 390, Ottoman 5s. 6d., 6s. 6d., Primitiva 31s. 3d., 31s. 4½d., 31s. 6d., 32s., South Metropolitan 106¼, 106½, 3 p.ct. deb. 58½, 59, Wandsworth 3 p.ct. deb. 56. Supplementary prices, Ascot District Original 11⅜, North Middlesex 6 p.ct. pref. 108½, Yorktown and Blackwater 5 p.ct. pref. 92.

Wednesday.—Barnet 7 p.ct. 114, Bournemouth "B" £12 11s. 9d, Commercial 98¼, 98½, Continental Union 124, 126, 7 p.ct. pref. 125, 126, Croydon 111½, European 19⅜, 19½, 20, 20⅛, 20⅜, 20¼, 20½, 20⅝, 20¾, Gas Light and Coke 18s. 9d., 18s. 10½d., 19s., 19s. 1½d., 3 p.ct. deb. 59, 60, Imperial Continental 373, 374, 375, 376, 377 377½, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, Primitiva 31s. 3d., 31s. 4½d., 31s. 5¼d., 31s. 6d., 31s. 9d., 31s. 10½d., 32s., 32s. 3d., 32s. 6d., 4 p.ct. deb. (1911) 79½, South Metropolitan 106¼, 106½, 107. Supplementary prices, British, Trowbridge 3½ p.ct. deb. 63, Danish 8⅛, 8⅜, East Surrey 5½ p.ct. pref. "A" 99¼, 6½ p.ct. pref. 100, Folkestone 83, Liverpool 6 p.ct. 94¼, Tottenham 5 p.ct. pref. 89s. 9d., Yorktown (Camberley) new 5 p.ct. pref. 92.

Thursday.—Alliance and Dublin 100, 100⅞, 101, Bournemouth 7 p.ct. max. 12⅜, Continental Union 123, 124¼, 125, 126, European 20⅛, 20⅛, 20¼, 20⅜, 20½, 20⅝, Gas Light and Coke 18s. 10½d., 19s., 19s. 1½d., 5 p.ct. deb. 101¼, Imperial Continental 382, 385, 387, 388, 390, 392, Metropolitan (of Melbourne) 5½ p.ct. deb. 101¼, Primitiva 31s. 9d., 32s., 32s. 1½d., 32s. 3d., 32s. 4½d., 32s. 6d., 32s. 7½d., 32s. 9d., South Metropolitan 106½, 107, 107¼. Supplementary prices, British, Hull, Trowbridge 3½ p.ct. deb. 63, Ventnor 10 p.ct. max. 19½, 19⅝.

Friday.—Bournemouth "B" £12 11s. 6d., British 119⅜, 120¼, Commercial 98¼, Continental Union 124, 124½, 125, 126, Croydon max. div. 84½, European £19 18s., 20, 20¼, 20⅜, 20½, 20⅛, 20¾, Gas Light and Coke 18s. 10½d., 18s. 11½d., 19s., 19s. 1½d., 4 p.ct. pref. 76½, 77, 3 p.ct. deb. 59⅜, Imperial Continental 382, 387, 388, 390, 393, 395, 396, 398, 400, 400⅜, 402, 403, 405, 408, Primitiva 31s. 9d., 31s. 10½d., 32s., 32s. 1½d., 32s. 3d., 32s. 6d., 32s. 7½d., 32s. 9d., South Metropolitan 106¼, 106½, 106⅝, 107¼. Supplementary prices, Reading 5 p.ct. 83, Sutton 118, 118½, Woking 5 p.ct. "C" pref. 74, Yorktown (Camberley) 5 p.ct. preference 92.

Short loan transactions were less than usual in Lombard Street at the close of the week. Fresh advances were obtained at from 4½ p.ct. down to 4 p.ct., and renewals at 4½ p.ct. Treasury Bills were allotted at an average of £5 6s. 0·26d. p.ct., which was ·85d. p.ct. only above the rate for the previous week.

The Bank Rate is 5½ p.ct., to which it was raised from 4½ p.ct. on Feb. 7. The Banks' deposit rate is 3½ p.ct., and the deposit rates of the Discount Houses are 3½ p.ct. at call and 3¾ p.ct. at notice.

SOUTHERN ASSOCIATION OF GAS ENGINEERS AND MANAGERS.

Annual General Meeting, March 15.

The Annual General Meeting of the Association was held at the Hotel Cecil, Strand, W.C., under the Presidency of Mr. W. E. DEAN (of Exmouth), who delivered his Inaugural Address. This was followed by an important discussion upon the subject of the Education Scheme, and by a paper which raised many interesting points connected with the new horizontal retort installation at Devonport.

LUNCHEON.

The meeting was preceded by a well-attended luncheon, at which the PRESIDENT occupied the chair, and was supported by the Chairman of the Exmouth Gas Company (Mr. E. T. Linscott) and Mr. Holbrow (one of the Directors). A number of other visitors were present.

The Loyal Toast having been honoured,

"THE VISITORS."

Mr. C. VALON BENNETT (Rochester) said that, in the unavoidable absence of the Vice-President (Mr. Frank H. Jones), it fell to his lot to propose the toast of "The Visitors;" and although he appreciated the honour thus conferred upon him, he felt Mr. Jones would have carried out this duty in a far more able manner. They were fortunate in having with them such a large number of distinguished visitors, among whom were the Chairman and a Director of the Exmouth Gas Company. They had also the pleasure of the company of Dr. Lewis Bailey, Mr. Damon, and Mr. Napier Sutton; and they welcomed Mr. J. W. Campbell, the new Secretary of the Institution of Gas Engineers. He did not propose to mention all the other visitors; but he would say how glad they were to have with them two Past-Presidents of the Association (Messrs. Broadberry and Beynon), both of whom were old chiefs of the President. He would say to Mr. E. T. Linscott (Chairman) and Mr. Holbrow (Director), of the Exmouth Gas Company, that the members were particularly glad they had honoured the Association with their presence, because they had in this way shown the same esteem for Mr. Dean as the members themselves had. Mr. Linscott was a member of the Devon County Council and other public bodies, and knew much about roads; and he was sure he needed no convincing that tar—especially that produced at Exmouth—was the best material for surfacing those thoroughfares which all motorists made so much use of. The Exmouth Gas Company had lately been looming large, because they had had to take the necessary steps to acquire powers to manufacture and store gas upon a new site. This spoke volumes. The undertaking had outgrown its present site; and this was the best proof that the Company had always done, and intended to continue to do, everything within its power to meet whatever demands for gas might be put upon it. There was nothing moribund about the Company, its Directors, or officials; and as the Board were thus in accord with the spirit which pervaded the gas industry, and because the members knew the Board were proud of the fact that their Engineer was President, they bid them a hearty welcome.

Mr. E. T. LINSCOTT said it was a great pleasure to him and to his co-Director of the Exmouth Gas Company to be there to congratulate Mr. Dean upon the position in which he had been placed. They appreciated the honour that had been done him, and wished him a very successful year of office. The work at Exmouth had been strenuous for some years past; but fortunately in Mr. Dean they possessed a thoroughly capable officer, whom they were able on all occasions whole-heartedly to support. He extended to the Association a most hearty welcome to visit Exmouth on May 10, when the Directors and the President would do everything they could to give them an enjoyable time.

The PRESIDENT, on behalf of the members, thanked Mr. Linscott for his cordial invitation.

IMPORTANCE OF VISION.

Dr. T. LEWIS BAILEY said it was a great pleasure to him to propose the toast of "The Southern Association," because he had seen the way in which it carried on its work, and what a healthy body it was. There was no indication here of that stagnation which was so apt to come along as the years rolled by, but which need not do so provided the individual members had vision. The President was a man of vision, as he was going to build new works; and so far as he could see, the members also were men of vision. In the past fifty years the gas industry had changed very considerably, and it was changing now more rapidly than ever before. It therefore behoved those who belonged to it to have vision. Gas managers had a lot of detail work to do, and so probably could spare little time for research. They had to get other people to carry out their ideas. Now the research of the future would be essentially chemical research; and he hoped gas managers would see to it that the chemists they employed were also men of vision. They needed men who were capable of thinking things out. If a manager had a man of this kind, he could go very far; and it was essential that he should, because there were so many problems facing the industry.

SOME INTERESTING PROBLEMS.

To deal with special problems, of course, there were central bodies; but there were many little things that they could work out for themselves, and which would not be worked out by the national institutions. One thing that came to his mind was the question of chlorine in coal. Probably one might assume that there was on an average about one-tenth of one p.ct. of chlorine in coal. This amounted to a pretty big thing in the long run. About 15 p.ct. of the ammonia contained in ammoniacal liquor consisted of ammonium chloride. Most of this came down right at the beginning of the condensation system; and it surprised him at times that more notice was not taken of this. It might be possible to deal with it at an early stage. A few days ago he had been looking into a sample of Congdon pipe liquor, and found that the amount of ammonium chloride went up to about 5 p.ct. Of course, in systems where the liquor was circulated, it became stronger and stronger, and contained more and more ammonium chloride; and why should they put it back into the liquor still? This was a little matter which was worth looking into. Then there was the argument that, as sulphate of ammonia did not pay, one should let it go. The ammonia had, however, got to be worked up; and if it was going to be worked up, why should they not get as much as they could? Losses of ammonia took place in ways one would not realize. He had been told of a case in which the storage tanks had been covered with an oil layer, and the yield of ammonium sulphate went up 50 p.ct. Then there was the phenol question, which troubled many people in connection with effluents. Would it be advisable to consider the conditions under which ammoniacal liquor was distilled? If it could go into the still at a higher temperature than was the case at present, one would get a much larger percentage of phenol driven into the "devil liquor," when it could be dealt with.

THE PRESIDENT,

W. E. Dean, of Exmouth.

Mr. Dean started in 1893 with the Tottenham and Edmonton Gas Company, at whose works he received his early training under the late Mr. W. H. H. Broadberry, and afterwards Mr. A. E. Broadberry. In 1906 he was appointed Assistant Engineer to the Torquay Gas Company, and left there in 1914 to take up the position which he now holds of Engineer, Manager, and Secretary to the Exmouth Gas Company. During his service with the Tottenham undertaking there was remarkable growth in that Company's business, and the experience he gained during that time was of considerable help to him subsequently.

The PRESIDENT, in response, remarked that the members owed a deep debt of gratitude to the gentlemen who worked with Dr. Lewis Bailey, for ready help on all occasions of difficulty. ["Hear, hear."] It was the desire of gas managers to do everything they could to prevent nuisance in the carrying on of their manufacturing operations. He had long since realized the need for conducting their business in a more scientific manner. To-day any business must have its foundation upon mutual satisfaction; and that of his own undertaking was being built up upon the fact that they did their best to give the consumer what he paid for. He was glad to be supported

upon that occasion by his two old Chiefs, Mr. A. E. Broadberry and Mr. R. W. C. Beynon.

BUSINESS MEETING.

The business meeting was subsequently held in another room—Mr. W. E. Dean in the chair. The minutes of the last meeting (as published in the "Journal") were confirmed. As a mark of respect to the late Mr. F. A. Baily and Mr. H. Buckley, the members stood silently in their places.

Annual Report and Accounts.

The report for the year 1928, as circulated among the members, was next submitted. It included the following items:

The Committee feel that it must be generally acknowledged that the position of the Association among the District Associations has been maintained, and that technically the papers presented at its meetings have been of great value.

The Committee deeply regret to record the deaths of the following members: Mr. F. A. Baily, Woodbridge; and Mr. J. S. Dougall, Boston.

The names of three members were removed from the list under Rule 3, and six members have resigned.

The membership on Dec. 31, 1928, consisted of 5 honorary members, 317 members, and 2 associates.

The audited accounts for the year show a surplus of £46 11s. 11d., bringing the credit balance to be carried forward to £159 13s. 6d.

Eastern District.

During the year 1928, eight meetings have been held in London, the average attendance at which has been 28; one meeting at Southall, with an attendance of 38; and a county meeting at Tunbridge Wells, at which 43 members were present. Much useful information regarding market prices and conditions has been exchanged at these meetings; and it is hoped that a larger attendance will, in future, make this information more comprehensive.

The resignation of Mr. L. Trewby, who had been Hon. Secretary of the District for eight years, has been accepted with much regret; members appreciating that much of the progress made by the Section has been due to Mr. Trewby's energy and initiative. In order to mark this appreciation in a suitable manner, the members presented Mr. Trewby with a tantalus, a pair of binoculars, and a silver teapot, as a unanimous expression of their esteem and regard. Mr. W. H. Warren was invited by the Committee to succeed Mr. Trewby as Hon. Secretary, and this was unanimously agreed to by the members.

The Committee view with regret the small attendance at the London meetings, which are, in their opinion, worthy of greater support; and it is hoped that members will make a special effort to be present during the coming session.

A. W. Sumner, *Chairman.*

Western District.

During the year, ten meetings have been held, one each at Bath and Ilfracombe, and eight at Exeter. There has been an increase in attendances of members; the average being 20, against 16 in the previous year. Several subjects of importance to the gas industry have been discussed, in addition to the usual commercial matters; and the general exchange of information has been beneficial and valuable to the members present at the meetings.

Reviewing the year generally, it has been very successful; and the Committee are gratified to note the increase in the attendances of members.

The following members were elected as District Officers for the ensuing year:

Chairman.—Mr. James Taylor.

Vice-Chairman.—Mr. James Armstrong.

Committee.—Messrs. J. H. Cornish, C. G. Dawson, S. E. Halliwell, C. Harris, H. Higham, P. S. Hoyte, J. H. Lowther, J. Harger Pye, H. E. Riley, C. Stapleton, A. Thomas, H. W. Versey, E. P. Vince, W. N. Westlake, and J. Wesley Whimster.

Hon. Secretary.—J. B. Cattle.

W. E. Dean, *Chairman.*

On the proposition of the President, seconded by Mr. J. Taylor (Weston-super-Mare), the report and accounts were unanimously adopted.

New Members.

The following new members were elected, on the motion of the President, seconded by Mr. W. H. Bennett (Redhill):

Mr. Edward Morgan Edwards, Sittingbourne.

Mr. Edward Andrew Harmes, Brighton.

Dr. Stuart Pexton, Gas Light and Coke Company.

Mr. William Eynon Davies, Gas Light and Coke Company.

Mr. Francis Henry George Higton, Dorking.

Representative on the Institution Council.

Thereafter Mr. C. Valon Bennett (Rochester) moved, Mr. P. S. Hoyte (Elburton, near Plymouth) seconded, and it was agreed, that the President be the representative of the Association on the Council of the Institution of Gas Engineers for the ensuing year.

Presentation to the Retiring President.

The President said he now came to one of the most pleasant duties of his year of office, which was to present to Mr. C. Valon Bennett a silver salver. Those who took part in the visit to Rochester last May would remember all Mr. Bennett's work to make the day the success which it was—work in which he was ably seconded by his Directors. In his year of office, Mr. Bennett had set a very high standard. Might this salver remind him for many years of a happy year of office, and of the high esteem in which he was held by the members of the Association. [Applause.]

Mr. C. Valon Bennett thanked the members for the gift, and the President for the kind words by which it had been accompanied. He said that certainly the Association was under no obligation to him; but he was under an obligation to the Association. The members had still further increased that indebtedness by presenting him with this handsome salver as a memento of his year of office. To have the honour of presiding for a year over their deliberations was a great one; and now it was over, he felt he had fallen very far short of the ideals which he had set out to attain. It would, however, have been much worse if he had not had the benefit of the ready assistance of the Hon. Secretary, Mr. H. C. Smith, and of the Directors of the Company which he (the speaker) had the honour to serve. To all of these gentlemen he tendered his sincere thanks. While he would treasure the gift always, no such tangible presentation was needed to remind him of the happiness he had experienced during his time as President. He trusted that the Association would go on from strength to strength; each of them always remembering, if he might borrow the motto of the Rotary movement, that it was "Service not Self" that must be their ideal.

A Duty to the Industry.

The President remarked that they had now with them the gentleman who was elected Vice-President in November last. On behalf of the members, he extended to Mr. Frank H. Jones a hearty welcome; and when the time came for him to occupy the chair, he trusted that he would have a successful year of office. Mr. Jones was a man of many activities, who could give much valuable aid to the Association. They could not possibly have done better than to ask him to accept the office of Vice-President.

Mr. Frank H. Jones said that in selecting him the members had made quite a wrong choice. However, he had arrived at the time of life when one realized that one did owe something to the industry with which one had been associated; and he had definitely made up his mind that a lot of the work he did should be for the benefit of the industry, through organizations such as theirs. Work of this character, done properly, must result in great good to the industry, both in encouraging research and in encouraging the younger men. It was up to all of them to do what they could to see that this old industry of theirs was provided with the right kind of men; and he had himself determined to do in the future more in this direction than he had done in the past. It was the duty of those who could to provide the personnel of the future, and to see that there were men worthy to fill positions which were becoming more and more important. He promised them he would do everything in his power to uphold the traditions of the Association.

The Institution President.

The President said he would like now to offer a hearty welcome to Mr. John Terrace, the President of the Institution of Gas Engineers. For many years he worked both with Mr. Terrace and under him; and it was a great joy to have his support upon the platform that afternoon.

Mr. John Terrace said the President's remarks had taken his mind back to the happy days they had spent together at the Tottenham Works. It must be very pleasant to those who had been in authority over them in those days to see their boys occupying the positions which they did to-day. He was sure Mr. Broadberry appreciated it highly.

President Thanked for His Address.

The President then delivered his Inaugural Address, which will be found on succeeding pages of this issue. At its conclusion,

Mr. A. E. Broadberry proposed a hearty vote of thanks to Mr. Dean. He said that he, and everybody else who had been connected with the Tottenham Works, felt proud to see their one time colleague in the Presidential Chair of the Association. While at Tottenham Mr. Dean showed himself both capable of taking responsibility and willing to do so. Willingness to do and dare was what was required, not only in the gas industry but in life generally. ["Hear, hear."] No finer example could be found of this quality than their President.

Mr. R. W. C. Beynon, seconding, also expressed his pride in doing so, as Mr. Dean had served under him at Torquay for some years. Anything the President undertook was absolutely well and thoroughly done. The best proof of this was to be found in the way in which he had pulled the Exmouth Gas

Company round from comparative poverty to the prosperous position which it occupied to-day.

The PRESIDENT remarked that it was very gratifying to hear such expressions of opinion from one's old Chiefs.

MODERN HORIZONTALS AT DEVONPORT.

Mr. F. BLACKBURN, Assoc.M.Inst.C.E., A.M.I.Mech.E., of Devonport, read a paper describing the new installation of horizontal retorts at the Devonport Gas-Works, an illustrated account of which appeared in the "JOURNAL" for July 4 last (p. 34). This paper, and our report of the discussion, are held over for inclusion in next week's issue.

The proceedings terminated with a hearty vote of thanks to the President, which was accorded on the proposition of Mr. L. J. LANGFORD, of Tunbridge Wells.

THE INSTITUTION EDUCATION SCHEME.

The item on the agenda following after the delivery of the Presidential Address was: "Consideration of a report of the Gas Representatives on the South-Eastern Education Committee of the Institution of Gas Engineers." This resulted in a lengthy and important discussion.

REPORT OF THE GAS REPRESENTATIVES.

The PRESIDENT having called upon the Hon. Secretary to present the report,

Mr. H. C. SMITH (Tottenham) said the origin of the unanimous report of the Gas Representatives on the South-Eastern Education Committee which he had to submit was that, at the meeting of the Eastern District about November, at which one of the main items of business was the election of Committees for 1929, the question arose of appointing representatives to serve on the South-Eastern District Education Committee, on which the Eastern District of the Southern Association had four representatives, and the London and Southern District Junior Association had four. The Southern Association representatives expressed themselves as being so dissatisfied with the working of the Education Scheme that they refused to allow their names to go forward for election. They said it was a waste of time, and that the scheme as designed was preventing a large number of very good men from getting on in the industry, because they were debarred from taking the examinations, owing to inability to obtain the education in the approved manner. Eventually, however, the representatives did agree to allow their names to go forward on condition that at the meeting of the Eastern District in January a report by the representatives on the Education Committee should be presented and considered. He was now submitting that report.

He would remind the members that District Gas Education Committees were appointed in different areas throughout the British Isles two years ago in order to provide additional facilities for the guidance of prospective candidates, and in order to overcome many difficulties which had arisen during the previous year's working of the scheme. It was felt that these Committees would relieve the Central Committee of a vast amount of work, and, because of their knowledge of local conditions, would be of great help to students in advising upon the proper course of study, where such tuition could be obtained, and in the formation of classes at suitable centres; this latter work being done, of course, in conjunction with the Board of Education, who had a representative on each Committee.

Early in December last, there was held a special meeting of the eight members of the District Gas Education Committee acting in this region; the business being "to consider in what ways the Education Scheme as it now stands fails to meet the needs of students in our industry, and to put forward ideas for its improvement." At the outset, the meeting wished to record their very great appreciation of the pioneer work carried out by Mr. Walter Hole, and the vast amount of time, experience, and enthusiasm that he had put into the Education Scheme, and their appreciation also of the unbounded optimism and enthusiasm of the Chairman, Mr. F. W. Goodenough. The opinion of this special meeting was that, as a Committee, they had been unable to carry out successfully the duties required of them, owing to the great difficulty of complying with the existing rules of the Education Scheme. The report went on: "Great sympathy is felt for the very large number of prospective candidates who are unable to attend either 'approved' schools or schools where tuition of the standard they require can be obtained, and for whom it is quite impossible to get classes started within reasonable distance." Cases of hardship were quoted—of good men who were being properly trained, but who, because they lived too far from a centre where an approved course was held, were unable to sit for the examinations.

DRASTIC RE-ORGANIZATION URGED.

As a result of this survey of present conditions, the following recommendation was unanimously agreed to: "That this body, being unable to carry out the duties entrusted to it, owing to the insurmountable practical difficulties of putting the Education Scheme as it is at present constituted into effect, recommends drastic re-organization, and suggests that the Institution of Gas Engineers should be an examining body only."

A letter enclosing the report had been addressed to the Institution of Gas Engineers, signed on behalf of the Eastern District by Mr. W. H. Warren, the Hon. Secretary. The main portions of the letter were as follows:

> This report was discussed by the Eastern District, and members present were unanimous in their agreement with the recommendations brought forward in it. They are aware that the Education Scheme of the Institution of Gas Engineers was designed to be an Education Scheme, and not merely an Examination Scheme, and that it would be inadvisable so to alter it as to allow candidates to pass examinations without a sufficiently comprehensive knowledge of their subject.
>
> At the same time, since the inception of the scheme, steps have been taken to modify the rules governing membership of the Institution of Gas Engineers, and the value of the Higher Grade and Diploma certificates in Gas Engineering in future will be that they (coupled with certain qualifications regarding training and experience) will admit candidates as members of the Institution.
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> In these circumstances, the members of the Eastern District of the Southern Association feel that the examination might be conducted by the Institution of Gas Engineers alone, and be so designed as properly to test a candidate's knowledge, not only in gas engineering, but in ancillary subjects. They suggest that one method by which this purpose might be attained would be by incorporating an oral test in the Higher Grade, as well as in the Diploma examination.

SOUTHERN ASSOCIATION COMMITTEE UNANIMOUS IN SUPPORT.

Mr. Smith went on to say that the report and letter had been forwarded to the Southern Association, in the hope that they would take up the matter. At the Committee meeting that morning the subject had been fully discussed; and the feeling was unanimous that support should be given to the letter and recommendation. At the same time, the Committee thought the Association ought to go a little farther, and make some sort of recommendation. They felt it should be quite possible for the Institution so to design its own examinations as to make quite sure that the candidates possessed a proper knowledge of the subject, and had not merely crammed; and that it should be practicable to examine candidates, not only in gas, but in ancillary subjects. It was, however, recognized that the Education Committee had done a great deal of valuable work in providing education for those people who were sufficiently near to the centres to take advantage of it. It was suggested that, while the Institution might hold their own examinations in the same way that other organizations with a Charter did, they might exempt from ancillary subjects those candidates who already held certificates in these subjects. Another thing was that membership of the Institution of Gas Engineers was going to depend upon examination; and unless they were going to make it easy for men who were in other respects qualified to take the examination, what was going to happen to the membership of the Institution?

THE INSTITUTION AS AN EXAMINING BODY.

Mr. E. SCEARS (Redhill) remarked that, as a member of the South-Eastern Education Committee, he agreed absolutely with the report, and felt extremely grateful to Mr. Smith for having explained it in the way he had done. The present meeting, however, was rather an opportunity for hearing the opinions of other members of the Association than those of the Committee. The Committee had conscientiously tried to carry out the duties expected of them in helping forward the Education Scheme; but they had experienced very great difficulty in explaining the scheme to students and in providing the necessary facilities. Their opinion was that a much better purpose would be served if the Institution could be an examining body only, and not attempt to provide educational facilities.

Mr. W. T. KENSHOLE (Lea Bridge), as representing the London and Southern District Junior Gas Association, said that that Association had done everything it could to make the scheme as popular and as workable as possible. The number of inquiries that had been made was surprising; but they were always up against the same trouble—the rules had been made so rigid that it was practically impossible to accommodate many students and potential students who wished to go through with the scheme. For the full benefit of education to be obtained, and for the future efficiency of the industry, it was necessary that some alteration should be made so as to provide the facilities in such a form that the students could take advantage of them. The Junior Associations were extremely keen on the scheme; and if they could get it adjusted so as to be more workable, they would be very glad indeed.

DIFFICULTIES IN OUTLYING RURAL DISTRICTS.

Mr. R. ROBERTSON (Bristol) said that he had had some experience in early days in attempting to form classes; but notwithstanding that his Company came within the ten largest companies in the country, and that they possessed a local education establishment second to none in their desire to promote education of this sort, and notwithstanding all the efforts put forth, the results were very unsatisfactory. Then he had been Chairman of the Western District Education Committee since

its inception, and had been brought into close touch with the difficulties of administering this scheme in the outlying rural districts. Right through they were impressed by the difficulty of carrying out the scheme in its entirety. They had not as a Committee discussed the report; but he had discussed it informally with most of the members, and they were all in agreement with the views set forth. He had also within the last few days had an opportunity of discussing the matter with some representatives of the Western Junior Gas Association. That Association at a meeting a week ago had this report before them, and subsequently a small deputation waited upon him, and they went into the matter fully. He thought he was voicing the sentiments of the Western Juniors when he said that they too were very dissatisfied with the scheme as a whole. He would like, however, to pay tribute to the high ideals which animated those responsible for the drafting of the scheme, and to the extraordinary amount of hard work they performed in bringing it into operation. He had never yet heard a critic of the scheme who thought for a moment of lowering the standard. ["Hear, hear."] Those who were criticizing it felt that it was possible to amend the scheme without the standard being lowered in any shape or form. It was not a matter that could brook much delay. They could not afford to go on too long experimenting; and they would be acting in the interests of the scheme as a whole if they as an Association could support this report and indicate to the Institution that it was their desire that the matter should be reviewed with the object of removing the difficulties. They should make it possible for every young person in the industry, no matter where he was, to have a reasonable chance of securing such qualifications and diplomas as would enable him to rank as a full member of the Institution.

Difficulties to be Overcome.

Mr. W. Phillips (Luton) said that, speaking as an outsider, he entirely agreed with the report, and with everything the Secretary had said with reference to it. He gave instances of difficulties which had come to his personal knowledge.

Mr. Barrett (Frome), Vice-President of the Western Junior Gas Association, said that at the meeting of that Association to which Mr. Robertson had referred the report was discussed, and it was felt by the Council that the difficulties in the way of attending the approved centres were practically insurmountable. So long as the student attained the standard necessary for the examination, surely it was not essential to force him to obtain it at an approved centre. Mr. Robertson had fully expressed their views, and he would like to support everything that he had said.

Mr. J. Taylor (Weston-super-Mare) stated that at the Western Section meeting held a fortnight ago the question of the Education Scheme was considered by the members, who were unanimously of opinion that it did not meet the requirements of the students so far as the West of England was concerned.

Mr. A. W. Sumner (Grays) also quoted instances of difficulty, and referred to the expense of attending at approved centres perhaps 20 miles away, and to the impossibly late hours it frequently involved in the case of men who had to be at work again early next morning. Some men, he pointed out, had previously taken correspondence classes, and then all their work was scrapped. If this was going on, it seemed to him that it might cost anything from £150 to £200 for a young man to get through these examinations, so that persons of limited means would be practically debarred, in many cases, from doing so. He would like to support the views put forward.

Other members also agreed that it was frequently impossible, except at excessive expense, to send young men to the approved centres.

Mr. J. H. Cornish (Bridgwater) remarked that all he could say was that in the extreme West of England it was absolutely impossible for the young fellows employed in gas-works to get the necessary education to pass in the ancillary subjects which were demanded by the Institution examinations. If the passing of these examinations was a necessary condition to becoming a member of the Institution of Gas Engineers, in a very few years there would be no Institution, because there would be no one to pass the examinations. He hoped a resolution would be passed which would call upon the Institution to make some alteration in their scheme.

Mr. W. W. Townsend (Colchester) expressed agreement with what had been said.

The Institution President's Statement.

Mr. John Terrace (President of the Institution of Gas Engineers) said he was very glad to have been present to hear this discussion. In fact, when he learned that it was coming on he made a special effort to attend, so as to gather the opinions of the members of the Southern Association. As President of the Institution, of course, he was not in the same position in regard to expressing his opinion as he would be if he were speaking for himself alone. As one who had been connected with the Education Advisory Committee for a good many years of its existence, he might perhaps argue some of the points that had been raised; but he did not intend to do this. His purpose was to assure those present that the Institution of Gas Engineers was most desirous of doing all that it possibly could, in connection with the forwarding of the Education Scheme, to carry out the wishes of its members. Now the Southern Association was a very important body; and if it put up to the Institution such an expression of opinion as the members had done that day, the Institution would have to take notice of it. He did not mean that the Institution did not take notice of everything. They tried to do their best, but there were some things which were more urgent than others. He promised them that the expressions of opinion voiced that day would be taken into consideration immediately by the Executive Committee, who would discuss the matter with the Education Committee, and that at the next meeting of the Council there would be an opportunity for thoroughly threshing it out. He did not think it would be wise for him to say anything more at the moment.

He felt rather tempted to point out what he might term some of the fallacies in the arguments put forward; but he would content himself by saying it seemed to him that there were two distinct expressions of opinion—one was as to the difficulty experienced by the District Education Committees in carrying out the work given them to do, and the other was a sweeping declaration that the scheme as it existed should be put on one side and an examination scheme substituted for it. These two points were so different that they could not be argued together. Perhaps in the first place the members of the Eastern District of the Southern Association who found it so difficult to carry out their duties might have expressed their views to the Education Committee through their representative; but be this as it may, decided opinions had been expressed that day by many speakers representative of many different districts. The Education Committee were already aware of the difficulties experienced in providing facilities of a sufficiently high standard to enable students to pass some of the examinations. He could promise them that between now and June, when he would give up his present position, he would use every endeavour to get matters adjusted in some satisfactory manner. [Applause.]

A Resolution.

The President said that as the subject had now been so fully discussed, he would read the resolution which had been drafted to go forward to the Institution. It was in the following terms:

> Resolved that this Association has considered the report of the Gas Representatives of the South-Eastern Education Committee, together with a copy of the letter addressed by the Eastern District of the Southern Association to the Institution of Gas Engineers covering that report. It is deeply concerned to learn of the general dissatisfaction and discontent that is reported to exist in the South of England with respect to the Institution's Education Scheme.
>
> The Association feels that, while recognizing the excellent and valuable work that has been carried out by the Education Committee of the Institution of Gas Engineers, the time has now arrived when the Education Scheme should be amended and modified in order to render possible the taking of the Institution's examinations by all properly trained gas engineers or students in gas engineering, irrespective of the methods by which they may have obtained their technical education.
>
> This Association feels that it should be quite possible for the Institution to hold its own examinations, not only in Gas Engineering and Supply, but also in ancillary subjects, and to so design these examinations as to provide a satisfactory test of candidates' knowledge. It suggests that exemption might be granted in ancillary subjects to those candidates holding the appropriate certificates in those subjects and who have been able to obtain their instruction in the manner already prescribed by the Education Scheme.
>
> The Association earnestly commends this resolution to the Council of the Institution of Gas Engineers, together with the report of the South-Eastern Education Committee, for their serious consideration.

The resolution was unanimously adopted, on the motion of the President, seconded by Mr. C. Valon Bennett.

Index to British Standard Specifications.—The 1929 edition of the Index to British Standard Specifications and Reports has just been issued. It is a complete subject index, which, in view of the large number (350) of British Standard Specifications now available, some of which include provisions for several articles or materials, will be of much assistance to those purchasing engineering and allied material, apparatus, and machinery. A numerical list of the specifications is also included. The list, which covers 33 pages, shows the wide range of subjects covered by the British Standard Specifications, and should be in the hands of all drawing offices and contracts departments of firms throughout the engineering and allied industries, as well as the purchasing departments of local authorities, who have found the British Standards of such benefit in the preparation of contracts. Copies are available from the Publication Department, British Engineering Standards Association, 28, Victoria Street, S.W. 1—price 1s. 2d. post free.

"W-D" CONTINUOUS VERTICAL RETORTS.

Striking Figures: Flexibility and Maintenance Costs.

In recent years the claim of flexibility in gas output has often been made by the advocates of continuous vertical retorts. To the gas engineer flexibility more particularly means "Can the plant respond to a suddenly increased demand over and above the rated capacity of the installation?" A plant may fulfil its guaranteed output; but has it anything "in hand?" The recent cold spell, when demand for gas rose to unprecedented heights, was a good opportunity of testing the flexibility of plants.

Woodall-Duckham continuous vertical retorts have shown their value in this direction, and two interesting cases may be cited:

The Bow Common plant of the Gas Light and Coke Company was guaranteed to make 8 million c.ft. of 510 B.Th.U. gas per 24 hours under normal working conditions. During February, over three consecutive days, with all the retorts working, the make of gas averaged over 9 million c.ft. of 500 B.Th.U. gas, and on one day rose to 9,600,000 c.ft., or 20 p.ct. over the normal daily output. This represents an output of 715 c.ft. of gas per 24 hours per square foot of retort house ground space, which is believed to constitute a record for any carbonizing plant yet built within a retort house.

A similar installation at Saltley Gas-Works, Birmingham, was called on for a sudden spurt, and responded with almost an extra million c.ft. per day over its rated capacity of 7 million c.ft.

In both cases these results were obtained by the regular staff and without preliminary tuning-up of a special nature.

One important feature of this flexibility with continuous vertical retorts is that, when speeded up, the plant can still make gas of the required calorific value. That this extra output is not obtained by sacrificing the life of the plant is strikingly shown in connection with the Provan installation of Woodall-Duckham continuous vertical retorts. This plant, which was rated to produce 17 million c.ft. of gas per day, is now in its eighth year of operation. It has consistently exceeded its guaranteed output when required, and has produced as much as 20 million c.ft. of gas in 24 hours. It is stated, moreover, with the approval of the Glasgow Corporation Gas Department, that this installation has carbonized over 2,300,000 tons without so much as one producer lining being repaired, and without any retort reconstruction. In the coming summer, when the plant will have been in continuous operation for eight years, only minor repairs will have to be made to a few retorts. Up to date only £4000 has been spent in replacements of bricks and castings, which works out at a figure of 0·42d. per ton of coal carbonized.

These results are attributed to the skilful operation of the plant and the high quality of refractory materials employed.

FUEL DEVELOPMENTS AND THE TRAINING OF FUEL TECHNOLOGISTS.

On Feb. 15 at Nottingham University College, Dr. J. W. Whittaker, of the Mining and Fuel Department of the College, delivered an address in which he made a brief survey of the economic possibilities of low-temperature carbonization. Dr. F. S. Sinnatt, Assistant Director of the Fuel Research Board, presided.

Dr. Whittaker, in the course of his remarks, said that it was no easy matter to decide upon the merits of the various schemes of coal utilization which were before them at the present time. Among the problems that presented themselves were the questions as to whether all domestic coal should be carbonized, and if so what processes should be adopted; whether coal should be cleaned more thoroughly at the collieries; whether gas fires should be employed more widely; and whether the whole of the coal should be gasified at the gas-works. There was much to be said, continued the speaker, for the employment of low-temperature processes at the collieries.

Dr. Whittaker said that, in his opinion, if ordinary coal could be burnt in domestic grates with a suitable grid coated with some catalytic substance to avoid the formation of smoke, then many arguments for low-temperature carbonization would be futile. He said he had rather elaborated the subject of low-temperature carbonization of coal in order to show what were the conditions necessary for the success of semi-coke as a domestic fuel. These conditions were (1) small coal of a very low ash content to be obtainable at a low price; and (2) protection or safeguarding for the oils and spirit produced. The carbonization operations, he added, would be best conducted at the collieries if these were in populous districts.

Referring to the training of fuel technologists, the lecturer said that there were endless branches of the subject in which an expert training was essential, and the type of man required for this kind of work must be a chemical engineer with a special training in fuels. The training of such men should be similar to that of an ordinary degree student in science or engineering for the first and second years of his university course; chemistry, physics, mechanics, heat engines, and electrotechnics being of the greatest importance. In his final year or years, his time should be spent on the subjects of (1) raw fuels, their mining and production, (2) the purification and dressing of fuels, (3) purification and gasification, (4) heat transference, (5) domestic heating and the heating and ventilation of large buildings, (6) the control of combustion, (7) the flow of gases and liquids, (8) mechanical draft, (9) the composition and testing of refractory materials for furnaces, (10) the testing of fuels, waters, and gases, (11) the metering of solids, liquids, and gases, and (12) economics.

SURVEY OF THE PARKGATE COAL SEAM OF THE SOUTH YORKSHIRE AREA.*

Reviewed by M. BARASH, M.Sc. (Tech.), A.I.C.

It is some twelve years since we had the privilege, at the Manchester College of Technology (Fuel Department), of taking part in the examination of one of the first "pillar" sections cut from a local seam of coal. Such a specimen is obtained by the careful and laborious cutting-out of a complete pillar of the seam from roof to floor at a representative portion of the coal face. There is little need to point out the value of taking such samples for the purpose of the collection and correlation of data with regard to coal seams. Great credit, therefore, necessarily attaches to those responsible for the development of this procedure in connection with the physical and chemical survey of our national coal resources, which is proceeding rapidly under the superintendence of Dr. F. S. Sinnatt.

The latest report of the Fuel Research Division of the Department of Scientific and Industrial Research shows a particularly good example of this method of investigation. This report, on the Parkgate seam of the South Yorkshire area of the Yorkshire, Nottinghamshire, and Derbyshire Coalfield, gives the results of a comprehensive and detailed examination of sixteen complete pillar sections of the seam taken at different points well distributed over the area.

The best development of the seam is apparently in the Sheffield-Rotherham district. It has been traced, and samples have been taken, over an area including Barnsley on the north and Sheffield on the south (approximately sixteen miles), and extending from the outcrop eastwards for about twelve miles to the margin of the concealed coalfield. The seam is an important one, and has been much worked. In its general structure, it exhibits certain well-marked characteristics which are maintained consistently over the area examined. The seam varies from 3 ft. to 6 ft. in thickness, and consists invariably of three main divisions which may be readily recognized by their general appearance. These three divisions are referred to as "tops," consisting of bright coal and sub-divided further under various names into hard and soft sections; "bottoms" similar in type and quality to the tops though containing rather less impurities in the form of pyritic inclusions and fusain partings; and "hards" or "middle coal" consisting of hard, dull durain. The latter division is the most characteristic of the seam; and its base forms a clearly marked horizon in that it is separated from the bright coal beneath by a fairly consistent dirt band varying in thickness up to 17 in., though it is usually considerably thinner, and in several places completely disappears.

Particular interest attaches to this report when taken in conjunction with previously reported large-scale tests on coal from this seam. It will be recalled that the report of the Fuel Research Board for the years 1920-1921 (first section) contains a valuable account of a comprehensive series of tests carried out at the Station on the carbonization of a representative coal (Mitchell Main washed gas nuts) from the Parkgate seam in the Glover-West continuous vertical retort setting, in order to determine the now well-known effects of steaming coal during carbonization for gas-making purposes. In the second section of the same report there are described further

* Department of Scientific and Industrial Research. Fuel Research—Physical and Chemical Survey of the National Coal Resources No. 13. "The Yorkshire, Nottinghamshire, and Derbyshire Coalfield: South Yorkshire Area. The Parkgate Seam." H.M. Stationery Office, Adastral House, Kingsway, W.C. 2. Pp. IV. + 64; price, 3s. net.

large-scale tests on the low-temperature carbonization of this coal in mild-steel horizontal retorts designed for experimental work at the Station.

For the present report a uniform method of examination of each section was adopted. Proximate and ultimate analyses (including the determination of phosphorus), and determinations of the calorific value and of the melting-point of the coal ash, were carried out upon samples representing the different sub-sections of each pillar, as well as on samples representing the average composition of each complete section. The behaviour of each sample on carbonization in the Gray-King apparatus at 600° C. was also studied in order to afford data for predicting its behaviour on carbonization on an industrial scale. Measurements are also recorded of the approximate percentage of the "Stopes" constituents (vitrain, clarain, durain, and fusain) in each section; and hand-picked samples of each of these were analyzed.

Taking the results of the laboratory examination as a whole, the seam appears to be fairly uniform and to represent a distinctly high-class quality of coal. The moisture content is low, between 0·9 and 2·8 p.ct.; the volatile matter is high, 29·7 to 36·6 p.ct.; the ash content is very low, 1·9 to 7·0 p.ct; the nitrogen content is very uniform, about 1·7 p.ct.; the sulphur averages less than 2 p.ct.; the calorific value is high, averaging about 14,500 B.Th.U. per lb.; and the melting-point of the ash is high, from 1320° C. to over 1400° C. The cokes from the laboratory assay were, in all but three cases, highly swollen.

The report ends with two useful appendices. The first of these deals with general considerations of the uses of Parkgate coal. The products of the seam are stated to find their main outlets for coking, gas-making, steam-raising, and household purposes. The "hards," where they occur in sufficient thickness, are generally removed at the picking belts to form a steam-raising coal. The remainder of the seam, the bright portions, is satisfactory for carbonizing in both horizontal and vertical retorts, producing a good coke and a high yield of gas and other products. The slack resulting from the preparation of the seam for the market is generally coked by the colliery companies in bye-product or beehive ovens for metallurgical coke. Agglutinating value tests show the seam to be but little inferior in this respect to many of the Durham coking coals.

Reference is made to the fact that improvement in the quality of the bye-product oven coke could probably be effected by blending the coal with a proportion of an inert material such as coke breeze or anthracite duff.

Reference is also made to the tendency for the introduction of Parkgate "hards" for locomotive fuel in the South Yorkshire area as a substitute for the "hards" of the Barnsley seam, of which the source of supply is being rapidly exhausted.

An attempt to compare the relative values of these two coals as locomotive fuels is described in Appendix II. It is shown that the only suitable portion of the Parkgate "hards" is the dull coal containing a minimum of bright coal bands.

A complete microscopical study of the seam from floor to roof has also been carried out of which complete details are to be published at a later date.

In going through the mass of valuable analytical data of this report, one is struck by two points which seem to merit some criticism. First, it appears that our methods of sampling are still far from perfect; otherwise it is difficult to explain why in quite a number of instances the analysis of the average sample of a section shows results incompatible with the analyses of the separate sub-sections forming this sample. Thus, for example, the five sub-sections forming Sample "A" show moisture contents varying between 0·6 p.ct. and 1·0 p.ct., and calorific values varying between 13,650 and 14,520 B.Th.U., while the average sample shows moisture 1·4 p.ct. and calorific value 14,580 B.Th.U. (pp. 8 and 9)—in both cases values higher than those of any constituent of the sample. This happens in an alarming number of cases. Secondly, a discrepancy of a similar nature occurs in the Gray-King laboratory carbonization assay results, and to such an extent that it is difficult to see how these figures could prove useful in predicting the comparative behaviour of samples on carbonization on a large scale. As an example of these (also rather frequent) discrepancies, in Sample I. (p. 31) the constituent sections give yields of 73·45 to 74·55 grammes of coke, 8·70 to 9·85 grammes of tar, 7·5 to 8·5 grammes of liquor, and 10,090 to 10,790 c.c. of gas; while the average sample made up from these sections gives 71·60 grammes of coke, 11·00 grammes of tar, 7·0 grammes of liquor, and 11,250 c.c. of gas.

Benzol and By-Products, Ltd., Report.—After making full allowance for depreciation, management, and all other expenses, Benzol and By-Products, Ltd., report a loss of £21,195 for the year to Sept. 30, 1928. This compares with a profit of £29,486 for 1926-27. After deducting the credit balance of £5236 brought in and adding £1041 transferred to sinking fund account, there remains the net loss of £17,000. In their report the Directors state that there was depression of sale conditions on the bye-products side of the Company's business; consequently the Directors regret it has not been possible to pay any dividend on the 6 p.ct. cumulative participating preference shares, these being in arrears since Sept. 30, 1926.

COKE FOR STEAM GENERATION.

In the course of a discussion at the Institute of Fuel on Feb. 13, in connection with a paper by Mr. W. F. Goodrich, M.B.E., on "Fuel Economy and the Small Steam User," some references were made to the use of gas coke.

Dr. W. R. Ormandy said he believed that in the near future there would be a great prospect for low-temperature distillation, and that this would result in the production of a more homogeneous type of fuel. The future that he would like to envisage for the coal of this country would be that they should have low-temperature distillation at as many centres as possible, producing coal for firing with up to 10 p.ct. of volatile, and, where the coal was sufficiently caking, producing a coke which could be used for ordinary grates. The low-temperature gas could be sent into ring mains and distributed to gas-works, while the tars would be converted into motor fuel.

Mr. E. W. L. Nicol (London Coke Committee) said high exit gas temperatures were the cause of very serious boiler losses. In one case he had in mind the exit gas temperature was of the order of 1000°, and the effect of substituting coke for coal was to reduce this to 500°. The maximum economic rates of combustion for coke under the various conditions obtaining were well known; and he suggested for the consideration of the Institute of Fuel that coke, hand fired, should be accepted as a standard by which the relative efficiencies of all other solid, pulverized, and liquid fuels should be judged, as regards both thermal efficiency and evaporation per unit of heating surface. Coke was not easily abused in firing, even at the hands of a novice. This probably was one reason—and a very good one—why the author had recommended coke so whole-heartedly and disinterestedly to the small steam user, who, as a rule, could not afford the services of a highly-skilled stoker, a chemist, or the installation of scientific combustion indicating and recording instruments. In one case of a battery of large coke-fired boilers there was a most comprehensive and expensive equipment of instruments of all kinds. The average efficiency of the boilers, night and day, was over 80 p.ct. The CO_2 was 16 to 18 p.ct., but no one would credit the instruments with the results obtained, which were due in part to the experience of the stokers, but in the main to the inherent efficiency of the fuel used. Mechanical stokers would deal with coke without any admixture of coal, but the adaptation frequently made to the chain-grate stoker by the use of what was known as the "Sandwich" system had its advantages. At the Deptford Power Station of the London Electric Supply Corporation they had been using 40,000 tons of coke per annum since 1918; and he was certain that it was used there because it paid to do so. Mr. Nicol said that he had had something to do with a plant which recently changed over from oil to coke. The plant was using 100 tons per week, and the net saving was £60 per week.

Mr. A. B. Scorer asked Mr. Nicol to give some idea of the service now available in regard to supplies of coke. It was desirable to feel that, having adjusted a plant to use coke or coke breeze, the necessary supplies would be available, at a sufficiently low price. There was also the question of furnace coke. The coke oven people were very short-sighted, because they could in many cases develop their surplus supplies and grade them, and find a good market with forced-draught working.

Mr. Nicol said that the adoption of the "Sandwich" system in London power stations and elsewhere had created a considerable demand for gas coke breeze for boiler purposes; so much so that breeze-fired boilers had been discarded at the gas-works in favour of waste-heat boilers. This had had the effect of throwing on the market a large quantity of coke breeze at a price which was attractive.

LANCASHIRE DISTRICT TAR BOARD CONFERENCE WITH SURVEYORS.

At the invitation of the Producers and Distillers of Tar in Lancashire, a Conference with Surveyors was held in the Midland Hotel, Manchester, on Wednesday, March 13. Col. W. M. Carr, Chairman of the Lancashire District Tar Board of the British Road Tar Association, took the Chair, and was supported by Mr. J. H. Sillitoe, General Manager and Secretary of the Manchester Corporation Gas Department (who was responsible for the arrangements), and other prominent gas engineers. Among the Surveyors present were Mr. H. Hamer, Borough and Highways Surveyor, Stockport, Lt.-Col. E. B. Martin, D.S.O., City Engineer and Surveyor, Salford, and Mr. F. O. Kirby, Borough Surveyor of Doncaster.

Col. Carr, in opening, said that the Conference had been convened with the object of providing the Surveyors in the Lancashire Area with an opportunity of discussing their needs and requirements with tar producers and distillers.

A full and frank discussion followed, in which a large number of Surveyors took part. Mr. W. E. Cone, of the British Road Tar Association, at the conclusion of the meeting, dealt with a number of technical points which had been raised.

The Conference, which was very well attended, was of undoubted value, and the interchange of views is likely to be very beneficial to all those concerned. Refreshments were served in the Alexandra Room. This Conference is another of a series of meetings which the British Road Tar Association are arranging in different parts of the country.

PRESIDENTIAL ADDRESS OF MR. W. E. DEAN, ENGINEER, MANAGER, AND SECRETARY OF THE EXMOUTH GAS COMPANY.

Southern Association of Gas Engineers and Managers, March 15.

The object of this address is primarily to create interest among those members who control, as I do, an undertaking whose output is under 150 million c.ft. per annum.

The Exmouth Gas Company was formed in 1841, and manufacturing operations were started in the following year. The only record I can trace from the formation of the Company is that a piece of land of about ½ acre was secured; and from this it is evident the activities of the Company were limited to a small area, both on the works and district. There is every evidence of the popularity of the gas supply in the town, as the business gradually increased sufficiently to warrant the application for an Act of Parliament in the year 1865. The undertaking then began to show signs of vitality, and 17 years later another Act was obtained to increase the capital powers, presumably to meet the expansion of the business. Exmouth, about that time, was little more than a small fishing town; but evidently the residents were not slow to realize the benefits of a gas supply, and apparently made good use of the service. Progress was steadily maintained, and in the year 1910 application was made for an Act, primarily to consolidate the stock, and secondly to increase the capital powers. From this you will observe the business of the undertaking was continually progressing, and warranted additional powers being sought. The 1882 Act included the scheduling of the additional land acquired, which was then 1·2 acres, and it is on this area that we are conducting our manufacturing operations to-day.

A mistake in these early days was that the original site was retained. This has proved a very costly error, as it entails the cartage of the whole of the raw material from the station or docks; the former being situated about one-third of a mile from the works and the latter about a mile. The site, of which only a portion is scheduled for gas making purposes, is not ideal. It is of peculiar shape, and is entirely surrounded by property and public highways, so that there is little or no hope for extension. As the erection of a holder is a matter of considerable urgency, my thoughts naturally turned to securing a new site that would allow for this in the near future, and ultimately provide sufficient space to build a new works. Careful consideration was given to various sites in the town, and we finally decided to purchase the one that offered the best facilities for the transport of raw material, and which is situated practically midway between the railway station yard and the docks.

New Site for the Works.

Application has been made to the Board of Trade under section 10 of the Gas Regulation Act for power to purchase a piece of the foreshore of the River Exe, and to construct gas manufacturing plant thereon. It is considered that, if we are able to secure this site—which covers an area of approximately 8 acres—we shall have sufficient room for many years hence. The site being on the foreshore, it will be necessary to reclaim practically the whole of it; and we estimate that at least 5 ft. of filling over the whole area will be required before it can be used for the erection of plant. We do not contemplate this will be necessary for at least ten to twelve years, with the exception of a portion on which the new holder has to be built. By encouraging the use of the area as a tip we hope that, when the time arrives to transfer a portion of our plant to this spot, sufficient area will have been reclaimed to permit of our erecting the buildings thereon. In order to assure ourselves of the suitability of the ground, test borings were put down, but unfortunately they did not reveal the quality of substrata we were led to expect; and in order to satisfy ourselves in regard to the load-carrying capacity, we decided to put down at least two test piles, and calculate the safe loading by the sets obtained. Two 12-in. square piles were then driven to a set of ⅜ in. for 10 blows, delivered by a monkey weighting 14 cwts. falling from a height of 4 ft. 6 in., and the calculated static load from these data was approximately 20 tons per pile. We considered this sufficient to warrant our proceeding with the preparation of the drawings of a reinforced concrete piled raft to carry a waterless gasholder of a capacity of 1 million c.ft.

A Waterless Holder to be Erected.

In view of the fact that the substrata is waterlogged at all states of the tide, it was considered necessary to include in the design a circumferential ring of sheet piles 12¼ in. by 7 in. to enclose the sand and shingle that forms the bed of the river; otherwise the receding tide would carry away the sand, &c., and render the structure insecure. It will readily be seen why the waterless type of holder was decided upon, when one bears in mind the load that has to be carried by the foundation of a holder of the telescopic type, floating in a tank of water and constructed on the usual principles.

A gasholder of the telescopic type, and of a similar capacity, superimposed above the usual water container, would exert a pressure equal to about 10,500 tons. This includes the tank, water therein, and the floating bell. The waterless holder considerably reduces the load, and will only require a foundation sufficient to carry the vertical sheeting, whereas any other type of holder requires a foundation so designed and constructed as to support practically an equal loading over the whole of the area covered by the water tank. When the relative cost of foundations was considered, we proved the waterless type would be less costly.

I recently had the pleasure of inspecting the waterless holder which was erected at the Staines Works of the Gas Light and Coke Company, and was impressed by the simplicity of its working and design. It appears to me that this Company, having decided to construct additional holders of this type at other stations, are satisfied tnat they offer at least some advantages over the older type. There is no doubt the waterless holder has come to stay, and I shall have no hesitation in recommending my Directors to place a contract for the erection of one of this type when the time comes to proceed with the work.

Retort Bench Reconstruction.

In August, 1914, I took up the duties of Engineer to the Exmouth Gas Company, and found the condition of the works and plant was such that it required immediate attention, and I started, therefore, with a very serious handicap. The employees were leaving almost daily to join the colours, and great difficulty was experienced in obtaining suitable men to replace those who had left. However, by perseverance, we managed to make a start with the reconstruction of a portion of the retort house containing 7 beds of retorts, which were hand-charged and producing anything but satisfactory results. In May, 1915, we had completed this portion of the work by demolishing four of the old beds and erecting on the site three beds of 8 retorts 15 ft. long, together with an electrical stoking machine of the Guest-Gibbons type. The result was a distinct improvement, and we soon turned the corner after a period of inefficient working. The retorts installed are of 23 in. by 16 in. section, and in normal work carbonize a charge of 9 cwt. in 12 hours. The gas produced has been in the neighbourhood of 70 therms per ton of coal carbonized.

With this improvement we carried on until 1922, when the second portion of the retort house was reconstructed. The space available precluded our installing similar beds to the first section; and in order to make the greatest use of the area, we erected three beds of 6 retorts of the same section and length. This completed the reconstruction work in regard to the retort house; and an increase of about 80 p.ct. in output was the result. This was obtained without any alteration in the length of the retort house; but a slight addition was made to the width, chiefly due to increasing the length of the retorts by 5 ft.

Silica.

The retort settings, as originally installed, were of ordinary fireclay material; but as time proved these to be unsatisfactory owing to the high heats adopted, we were faced with trouble with the two centre retorts in the beds of eight. These retorts, supported by the silica arch of the combustion chamber, were the first to feel the effects of the intense heat. They were what might be termed the keystone of the arch, and it was apparent that, if they failed, it would have the effect of letting down the other retorts in the middle and top rows. This soon proved to be the case. Owing to the change in shape, due to insufficient support, it was not long before the whole of the retorts in the middle and top tiers lost their shape, and great difficulty was experienced both in charging and discharging them. Their life, under these conditions, was very short, and it was soon apparent that retorts of a better material were necessary if we were to expect a reasonable life from our settings. On giving the matter careful consideration, I decided to try the siliceous material purely as an experiment. Retorts of this description were put in the positions where we previously experienced failures, but we were soon convinced that even then we had not made the correct selection. We went a stage further, and put in two silica segmental retorts in the middle of the setting; and after carefully attending to the rising of the heats, we soon realized that these retorts, only, were likely to yield good results. The two retorts were put to work in October, 1924, and have since been in constant use. Due to their being able to withstand the high temperatures and retain their shape, and owing to the additional support given to the side retorts which

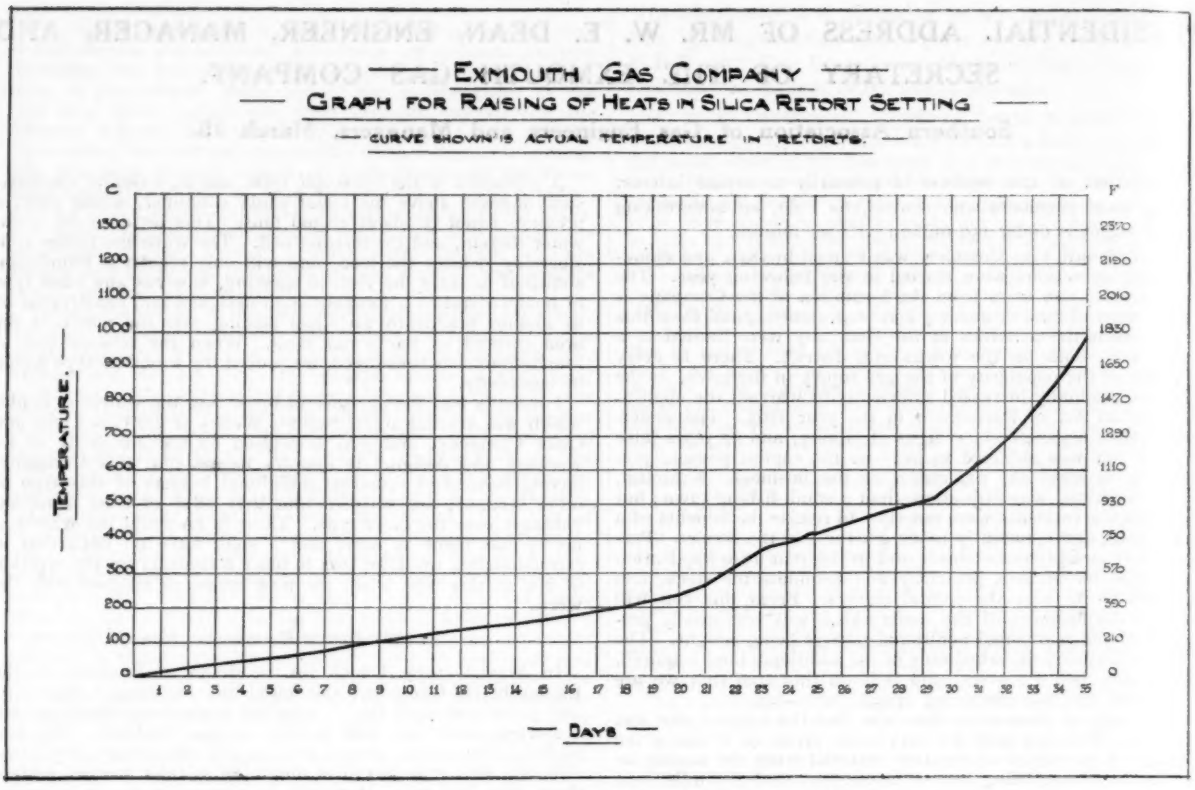


FIG. 1.

are manufactured of siliceous material, the life of the setting has been increased considerably.

The success of this experiment encouraged me to continue with the silica material, and we now have only one bed of six without any silica retorts. It is our intention, when this is due for renewal, to reset it with silica. We shall then have all our beds similarly equipped, with the exception of the bed of eight which contains the two original experimental retorts. The shapes of these retorts are perfect after upwards of 1600 days' work. As for the middle retort in the top row, the throughput has been 1600 tons. In the case of the retort which occupies the centre middle position, we have obtained a throughput of 1730 tons. The difference is due to the smaller charges and more frequent charging. In the former instance a 10 cwt. charge of 12 hours' duration was adopted. For a period the latter retort was on a similar charge; but subsequently we found we were able to carbonize an 8 cwt. charge in 8 hours. This gave a 20 p.ct. increased throughput over the retort immediately above it.

The temperatures of the settings are obtained by the disappearing filament pyrometer. Daily readings of the temperatures of the combustion chambers are taken, and the general average is about 1360° C.

Changing over from ordinary fireclay and siliceous material to silica was rather a bold step for a small works; but I am of opinion that if sufficient care is exercised in both raising and lowering the heats, no great difficulty need be experienced. Another factor that may influence the adoption of this class of material by small works is the cost. Our experience proves the difference in cost between that of a setting of ordinary fireclay and one constructed of silica segmental retorts is approximately £20—that is, for a setting of 8 retorts, 15 ft. long, with the usual silica material for setting them. This is negligible when compared with the extra life obtained, when one considers that, owing to the ability to maintain a higher heat, the throughput during their life is considerably increased.

The claim that silica refractories have a higher thermal conductivity than fireclay refractories has undoubtedly been established in gas-works practice. At first, much confusion of thought was caused by this claim, owing to the fact that the conductivity of silica at low temperatures is inferior to that of fireclay. The life of a retort setting is dependent on many conditions, and it is very difficult to obtain fair comparisons. Undoubtedly the fairest expression of the life of retorts is tons of coal carbonized per retort. It is unfortunate that, though silica has been used to an increasing extent during the past 12 or 14 years, so little exact data has been published regarding life under varying conditions, and especially as regards the behaviour of silica in comparatively small works.

Mr. Stephen Hay, in his paper before the Association in 1927, proved beyond question that silica gives a longer life than fireclay under conditions existing at Beckton, and many other engineers have stated in a general way that silica settings are more durable under modern conditions than fireclay. The main advantages of silica over fireclay fall under the following heads:

(1) Maintenance of shape at high temperatures.
(2) Increased rate of carbonization and throughput.
(3) More easily scurfed.
(4) Larger charges can be adopted.
(5) Less cracking.

It has been proved, in many instances, that when the settings are sure of continuous working, silica has decided advantages over siliceous and fireclay; but for beds of retorts that are liable to be shut down at intervals, it would probably pay to set them with good quality fireclay owing to the heavy fuel consumption necessitated by the extended heating-up period required for silica retorts.

Before leaving this subject I would like to draw your attention to the curve shown in fig. 1. This has been supplied by the makers of the silica retorts, and indicates the care that is necessary in raising heats. At temperatures below 600° C. the greatest expansion takes place, and when this has been reached the heats can be raised without fear of damage. Conversely, an equal amount of care must be taken when the heats are lowered below this temperature.

While on retort house matters, I would like to refer to a very efficient form of retort house control which I had the privilege of inspecting recently. It appeared to me, at the time, that some modified and less expensive form of control might, with advantage, be adopted in a smaller works; and it is my intention, when time permits, so to equip our retort house, as I am convinced it enables one to obtain better results and a more regular quality of gas. The adoption of these modern methods of control is of considerable assistance in securing a higher efficiency; and the pioneers deserve our congratulations and thanks.

Coal.

It has been the custom, for many years, to purchase our coal supplies from the best South Yorkshire field. This selection is, to a very large extent, due to the remote position of our town from the coalfields, and it has always been considered the best policy to purchase a good clean gas coal in view of the fact that the carriage and wagon hire charge per ton would be the same on an inferior class of coal if obtained from the same area. The geographical position of the town necessitates careful attention to this matter when the selection of coal is under consideration, and as the source of our supply is situated about

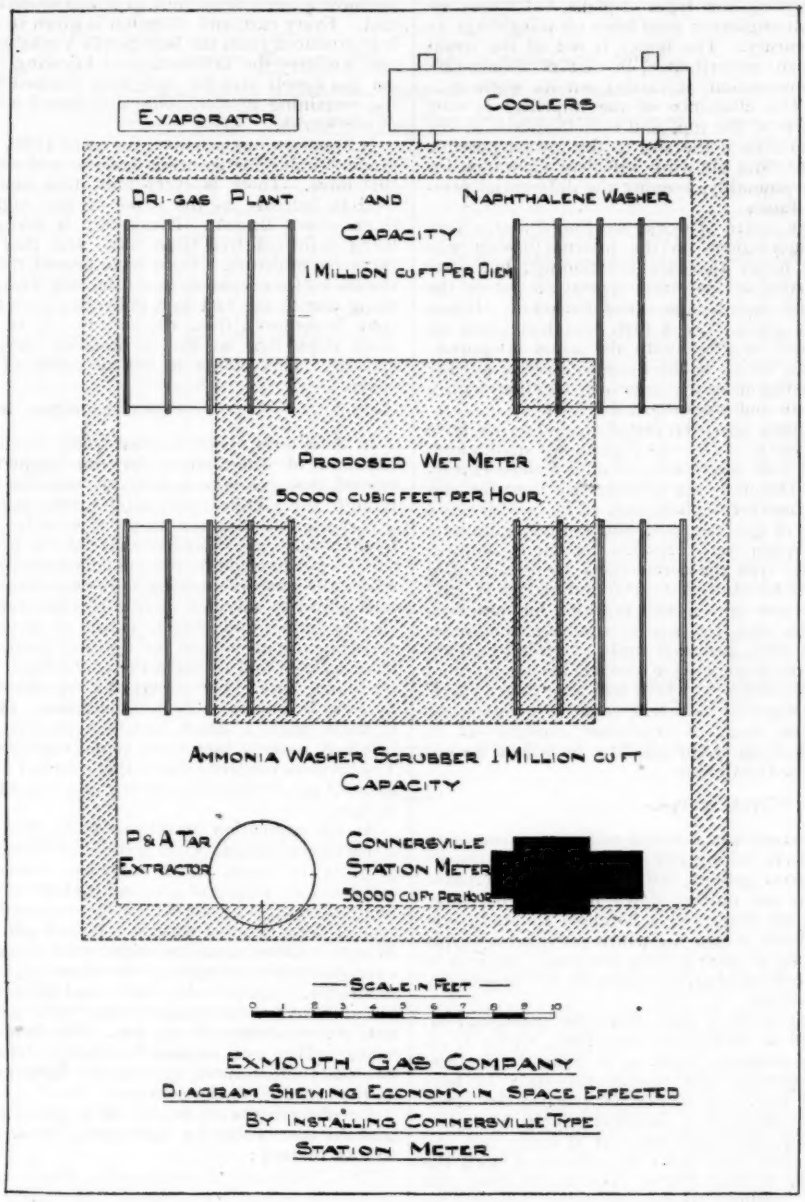


FIG. 2.

280 miles from the works, it will readily be seen that the carriage charge is a heavy one.

Analysis of the Cost of Coal Delivered.

—	1.	2.	3.
Distance from colliery, miles . .	280	274	284
Railway rate, p.ct. of total . . .	46·1	47	47
Wagon hire, p.ct. of total . . .	7·8	7·6	7·3
Price of coal at pit, p.ct.. . . .	46·1	45·4	45·7
Total cost of coal delivered .	100·0	100·0	100·0

From these figures it will be observed that the cost of railway carriage, *plus* wagon hire, is higher than the pit price of the coal, and explains the reason for selecting a high-class gas coal as against inferior qualities which may be offered at a lower pit price.

Our position on the seaboard enables us at times to take advantage of the lower price of the North Country gas coals; but as the cost for freight, dues, discharging, and cartage to the works is heavy, added to which is an extra charge for trimming and placing into store, we cannot obtain the same advantages as those undertakings which are equipped with modern plant for discharging vessels and conveying into store. Sea-borne supplies, therefore, can only be accepted when the cost into store is decidedly lower than that of rail-borne supplies—always bearing in mind the comparative values in regard to the yield of gas and residuals.

Since the Five Counties Scheme has come into operation, some difficulty has been experienced in regard to steady supplies, and it is to be hoped this will be put on a better basis. Another important stage, to which it is essential we should return, is the 60/40 percentage deliveries, in view of the extra cost incurred in putting coal to stock in the summer months and drawing therefrom in the winter months.

Washer-Scrubbers and Connersville Meter.

In the latter part of 1927, the reorganization of the wet purification system called for attention, and as our existing ammonia scrubber had been in use for 17 years and had come to the limit of its effective capacity, it was decided to remodel the lay-out of this portion of our plant, together with the works mains, which were too small and gave trouble when we were passing our maximum quantity of gas. The opportunity was also taken to instal a new station meter in place of the existing one, as its normal hourly capacity was very often exceeded, and thus no reliance could be placed on its accuracy. Owing to the confined space available, we decided to instal a Connersville meter of a capacity of 50,000 c.ft. per hour. Reference to fig. 2 will indicate the amount of space rendered vacant by dismantling the old meter and washer-scrubber. This provided sufficient room for the meter, P. & A. tar extractor, and two rotary washer-scrubbers, each of a capacity of 1 million c.ft. per day. One washer-scrubber is used for ammonia extraction, and the other for eliminating naphthalene and drying the gas.

Before deciding to adopt the Connersville meter, I made exhaustive inquiries in regard to its accuracy, and I was informed that, under test in series with an older type of wet meter which had previously been proved accurate, the readings differed to the extent of less than 0·5 p.ct. This would, I take it, be enough to satisfy most engineers. Generally speaking, we are

very conservative in adopting new types of plant, but I have no hesitation in stating that engineers need have no misgivings as to its working and accuracy. The meter is not of the usual standard of English finish; nevertheless, in view of its accurate design and internal construction, it carries out its work in a satisfactory manner. The clearance of the impellers is only 4-thousandths of an inch at the top, and 6-thousandths at the bottom, thus tending to reduce the slip to the lowest possible limits, and at the same time allowing sufficient clearance for the impellers to revolve smoothly, keeping the differential pressure within reasonable limits.

Soon after we put the meter to work, we found that a very slight deposition of naphthalene on the internal casing was sufficient to cause the meter to cease functioning; but after clearing away the obstruction, the meter was again put on the stream in series with the naphthalene extraction plant. It has been in constant work since May 5 last, and has given no trouble since. The meter is fitted with the usual integrator, also the P.V.T. recorder, which enables one to observe quickly the quantity of gas passing at hourly intervals, together with a record of the temperature and pressure at the inlet.

The first washer-scrubber has been installed, and as we have not yet decided which type of " Dri-Gas " plant we shall adopt, we at present carry out both ammonia and naphthalene extraction in this machine. The first four sections are used for ammonia, and the second four for naphthalene. The machine will deal with 600,000 c.ft. of gas per day, and entirely eliminate the NH_3 and $C_{10}H_8$. When the " Dri-Gas " plant is adopted, if of the rotary scrubber type the connections are so arranged that no alterations will be necessary to accommodate it, and our intention then is to use the original machine for ammonia extraction only. At the time the washer-scrubber and meter were installed, the two new ½-million units of Holmes super-horizontal water-tube condensers were erected in the place of the annular air-cooled condensers, which had seen many years' service, and were no longer of sufficient capacity to meet our requirements. The new type of condenser enabled us to economize further in our space, in addition to which we obtained a higher efficiency than before.

Water Supply.

The adoption of this condenser entailed a larger consumption of water; and as we were taking our supply from the town's mains at 1s. 3d. per 1000 gallons, we felt that the increased consumption warranted our putting down our own borehole. This was carried out last year, and a borehole 12 in. in diameter was sunk to a depth of 300 ft., which provided a supply of good water at the rate of 4000 gallons per hour; the cost of pumping, including overhead charges, being in the neighbourhood of 3d. per 1000 gallons.

It may be of interest to state that, from the geological information, we were led to expect red sandstone, which is an excellent water bearing stratum, about 50 ft. from the surface. This proved to be incorrect, and it was necessary to bore through 115 ft. of red marl clay before we reached the sandstone. We have since obtained a plentiful supply from this source, and the economy effected in the cost of water will pay for the whole of the work and plant in connection with the borehole in about three to four years. The water from this boring is not suitable, without treatment, for evaporation in our boilers, owing to its hardness; but as this represents a very small proportion of our total consumption, we find it more economical to use the water from the town supply, as it is obtained from a moorland watershed, is much softer, and deposits very little scale.

Carburetted Water Gas Plant.

The C.W.G. set is one of the ground-floor operated type, has a daily capacity of 376,000 c.ft., and is fitted with the back-run process and a special type of blast products scrubber. This was essential; the proximity of surrounding property necessitating extra precautions against the nuisance of fliers. The plant is not in continuous operation, and is generally worked only between 6 a.m. and 10 p.m. if required. As our relief holder has only an effective capacity of 30,000 c.ft., the percentage of admixture is greatest during the period of the heaviest load at breakfast and dinner time. At other times during the day and night a more regular percentage is introduced. I am aware this is not the most economical method of working, but the circumstances do not admit of any other form of control. Provision has been made to duplicate the plant at some future time; but there does not appear to be any urgency for this.

I should like to state that we have found the plant of great assistance in enabling us to keep our coke stocks within reasonable limits, and thereby obtain a higher price than would have been the case had we manufactured only coal gas.

Coke.

For many years we have been most assiduous in working up our local sales of this fuel, and I am pleased to state we have met with a fair measure of success. Every opportunity has been taken to advertise the many uses to which coke can be applied, and as the tendency is to instal coke-heated hot water boilers in modern houses, as well as in some older buildings, we have a fairly large field in which to distribute our smokeless fuel. Every care and attention is given to its manufacture, and it is produced from the best South Yorkshire screened gas coal; and we have the satisfaction of knowing that our sales within our gas supply area for 1928 have reached 87 p.ct. of the total—the remaining 13 p.ct. being distributed within 15 miles' radius of the works.

It has been our practice, for some time, to cut our coke to a grade suitable for domestic boilers, and we now sell 53 p.ct. in this form. There is every indication that the proportion will tend to increase as the value of this high-class fuel becomes more widely known. Every care is taken to ensure the coke being delivered free from dust, and that it does not contain excessive moisture. Tests have proved the moisture content in the bulk of our coke to be in the neighbourhood of 5 p.ct.; this being due to the fact that deliveries are effected soon after the coke is removed from the retorts. It is only when we draw from stock that we find a material increase in the moisture content. This points to the necessity of storing coke under cover.

Public Lighting.

In these days, when modern traffic conditions demand a high standard of illumination for our highways, it is generally agreed that gas is pre-eminently suitable for the purpose; and though the smaller provincial towns are not called upon to give such fine displays as those seen in the cities and larger towns, every care should be exercised in producing a result that enables gas to stand in an unassailable position. In my opinion, where the gas undertaking is responsible for the service, it can well afford to sacrifice a little revenue rather than reduce efficiency, as this undoubtedly is one of our best mediums for advertising the use of gas for lighting purposes. In our case we have secured and retained the confidence of the municipal body for many years. The streets of Exmouth have been illuminated by gas, in one form or another, since 1842; and in 1914 the Council, with a desire to effect further improvement in the lighting, entered into a ten years' contract with my Company. The services rendered under this contract comprised the replacement of 400 of the older pattern lanterns with those of a modern design.

At the expiration of this contract, the Council entered into a further contract, with certain modifications, for a term of 5, 7, or 10 years. Both contracts covered the whole of the service—*i.e.*, supply of gas and maintenance; this arrangement being preferable to one where the responsibility is divided. The type of lamp adopted was the 2-lt. and 3-lt. cluster burner, fitted in square lanterns and provided with bijou nozzles, lighted and extinguished by means of the Gunning automatic clockwork controller. There are 511 2-lt. and 65 3-lt. lamps, and though we are situated on the seaboard, where gales are prevalent, the cost of maintenance is very low. The lamps are attended by two men. They are cleaned fortnightly, clocks wound, and the necessary adjustments made in the lighting-up times to conform to the schedule in the contract.

Careful records are kept of all material used for maintenance, and the cost of this for 1928 was £17 0s. 10d., details of which are as follows:

Material Used.	No.	Cost.
		£ s. d.
Mantles	883	10 13 4
Globes	9	1 11 6
Nozzles	14	0 3 6
Controller repairs	5	1 5 0
Sundries, glass, &c.	...	3 7 6
		£17 0 10

The total number of nozzles in the whole of the lamps on the district is 4217, the mantle consumption per nozzle per annum being 0·73. In the case of the 41 lamps which are situated on, or adjacent to, the sea front, the mantle consumption per nozzle was slightly higher than the average, working out to 0·91; but when one considers the exposed position, it cannot be called an extravagant figure. I cannot speak too highly of the type of controller we have adopted as a standard.

The lighting period of all the lamps in the town varies according to position. Those in the side streets are extinguished at 11.30 p.m., and in the main streets at midnight. There are a few all-night lamps at dangerous corners in the town, or where some alteration in the road renders its illumination necessary until such work is completed.

Distribution.

One fully recognizes that all mains should be of ample size to meet any load that may be put upon them; but I regret to say this state of affairs does not always apply in our case. We are frequently engaged in removing small mains and laying larger ones; and the results more than compensate the outlay, in addition to which we gain the confidence of a satisfied body of consumers, who generally make good use of the supply when it is provided.

I have for some time been engaged in remodelling our dis-

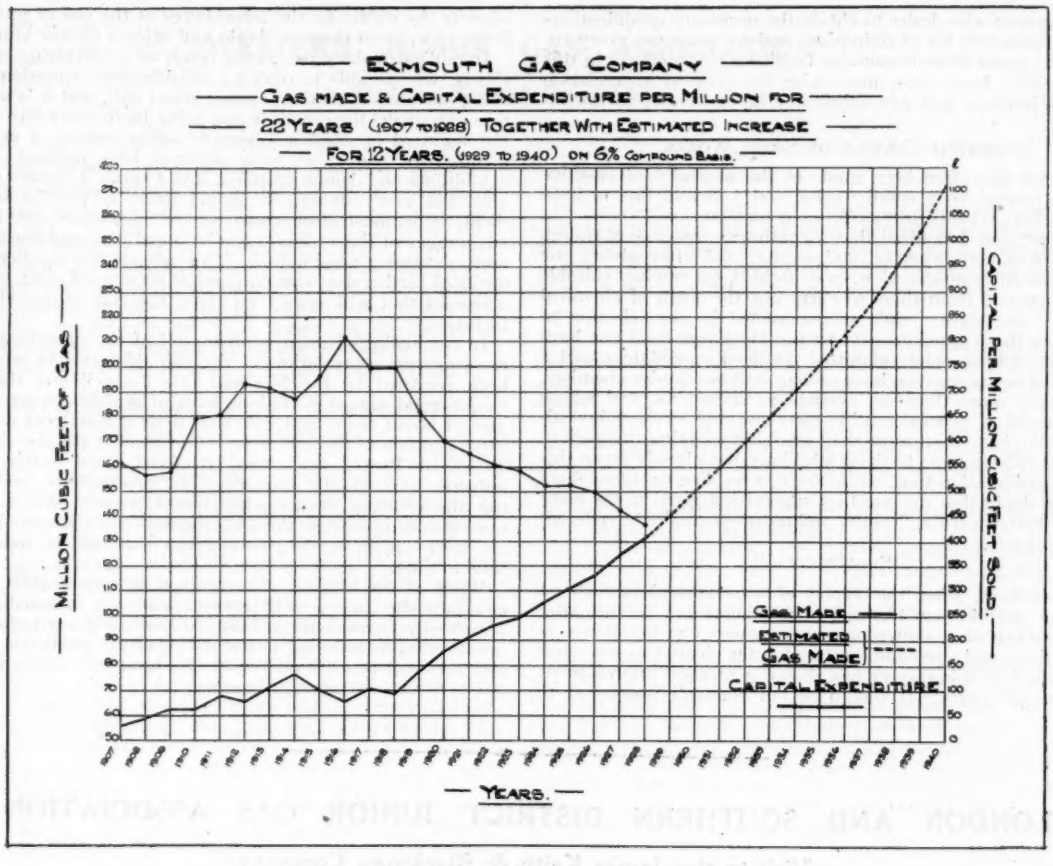

EXMOUTH GAS COMPANY
GAS MADE & CAPITAL EXPENDITURE PER MILLION FOR
22 YEARS (1907 TO 1928) TOGETHER WITH ESTIMATED INCREASE
FOR 12 YEARS. (1929 TO 1940) ON 6% COMPOUND BASIS.
MILLION CUBIC FEET OF GAS
CAPITAL PER MILLION CUBIC FEET SOLD.
GAS MADE
ESTIMATED GAS MADE
CAPITAL EXPENDITURE
YEARS.

FIG. 3.

tributing system to obviate the necessity of running a booster except at dinner-time, and the excellent paper read by Mr. H. C. Smith at the meeting of the Institution last year indicates, I am convinced, the lines on which our distributing systems should be modelled. This provides for a constant pressure throughout the day and night, and, to my mind, is the ideal form of distribution. In a district such as ours, when during the summer months a large number of visitors are resident, we have to provide for a heavy demand at midday during the cooking load; and it may, perhaps, be of interest to you to learn that at times we have sent out 40 p.ct. of our daily output between the hours of 11 a.m. and 1.15 p.m. I presume this is general in seaside towns. Our winter load, under normal conditions, is very steady, but though we enjoy a somewhat equable climate, we are faced with a material change in consumption when the temperature drops and the gas fires are brought into use. The heavy tax upon our mains, under these conditions, compels us to bring our booster into use in order to maintain a satisfactory pressure at the remote portions of the district.

Recent investigations into the capacity of some of our older mains revealed the fact that some form of deposition was taking place, and we found large quantities of rust in the pipes. Samples were taken and submitted for analysis, the result of which was—

Moisture (loss at 100° C.)	16·84 p.ct.
Loss on ignition	17·16 ,,
Mineral residue	66 ,,

The mineral residue consists almost entirely of ferric oxide, and the substances lost on ignition were water, ammonium salts (including some cyanide), and other organic matter. The report then goes on to state: "It is the opinion of the analyst that the ammonium-sulphocyanide is the chief agent in producing the deposit, and while there are several means of preventing it, such as spraying with oil, glycerine, &c., the most effective method is to swab the mains with a good red and white lead paint." This, I believe, has been done for some years by several large undertakings, and has proved satisfactory. The trouble we have experienced in this respect is not confined to any particular type of main; the deposit being just as pronounced in cast-iron mains as in steel.

MAINS AND MODERN TRAFFIC.

I would like to make some reference to the effect of modern highway traffic on the older mains, most of which were laid prior to the advent of the heavy loads that now pass over the roads. It was customary, in the past, to lay mains much shallower than is the usual practice to-day; and if we are desirous of reducing leakage due to faulty joints and fractures, it is necessary to lay the mains at a greater depth. This entails increased expense, both in laying and examination; but I am convinced it is more economical in the long run, and our experience has proved that all mains, particularly those subjected to vibration set up by heavy traffic, should have a cover of at least 2 ft. 6 in.

Where possible, we lay our mains in the footpaths, and here again we often experience trouble, but in another form. I refer to the other public service suppliers who, being equally as anxious as ourselves to keep out of the roads, often lay their mains and cables in the same footway. This, I regret to say, is principally due to a lack of co-ordination, and though we abstain from laying our mains in the footpaths when the other suppliers are in possession, we do not always receive the same consideration if we are first in the field.

Finally, another matter of considerable importance is road widening. A recent case in our town had the effect of altering the position of the main from within 3 ft. of the kerb line to a position almost in the centre of the road. This means that, when examination, repairs, or connections render it necessary to open up, we shall be compelled to close a large portion of the road to traffic while the work is in progress. I do think the cost of altering the position of a main, where road improvements are carried out, should be borne by the authority concerned with the work, and not by the gas undertaking.

EDUCATION.

When the Education Scheme was first introduced by the Institution of Gas Engineers, it was hardly possible to appreciate the difficulties prospective students would have in obtaining the tuition necessary to enable them to qualify for the examinations. This defect was soon brought to my notice by the members of my staff who were anxious to become candidates. The facilities in the West Country are very limited; and unless one is prepared to grant leave to the juniors to attend classes during working hours, they have little opportunity of acquiring the necessary standard.

I am given to understand that the matter has been thoroughly discussed by the various District Education Committees, and that it is their intention to put forward suggestions to the premier body which will make the Scheme more adaptable to the circumstances now existing. In their present form the rules do not offer the student sufficient selection for securing the necessary advanced instruction; but I feel sure this can easily be rectified if willingness is shown by all concerned to remove the difficulties now experienced by young men in isolated localities. I think, therefore, it is essential to encour-

age young men who desire to obtain the necessary qualifications to offer themselves for examination, and we must use every endeavour to grant them reasonable facilities. Any efforts in this direction will, I am sure, meet with the greatest appreciation from the juniors, and will ultimately be of benefit to the industry.

Chemical Control on Small Works.

Reference has often been made to the necessity of effective chemical control on a small works, and I should like to indicate my views on this in regard to our own works.

For some time I realized that a continuance of rule-of-thumb methods was both wasteful and wrong, and after giving the matter careful consideration, we decided to employ suitable young men and train them to carry out the work of chemical control of the plant. We were assisted in our selection of juniors for these appointments by the Headmaster of our local Secondary School, who submitted qualified candidates; and I am pleased to say we now have on our staff two junior chemists, who possess more than the average qualifications, and whose duties consist of general routine tests and any work of investigation. We have been more than repaid in adopting this policy; and I can only suggest to those who have not already given this matter consideration that, while there is no direct return, there can be no doubt that the constant supervision given to the plant produces better working results and must eventually be reflected in the accounts.

Showrooms.

In these days, when the display of apparatus plays such an important part in our business, one cannot fail to recognize the advantage of a showroom where goods can be shown in ideal settings and surroundings; and I am pleased to note that the standard in this respect has shown a marked improvement during recent years. It should be our constant endeavour to educate the public on the advantages of the use of gas, and in doing so to assist them to obtain and enjoy a clearer atmosphere.

In our particular case, as the result of modernizing our showrooms, we are able to record a considerable expansion of business; but we feel that we cannot stand still, and it is our intention to remodel the premises and bring them more into line with the standard of excellence seen in other towns. I might also mention the benefit we have obtained from holding periodical exhibitions and demonstrations, and I think it eminently desirable that every showroom should have, as part of its equipment, a demonstration room where consumers can have the advantages of the various types of apparatus explained to them under working conditions. This affords an excellent opportunity of further development, and, if persevered with, will bring a reward that will more than repay the cost of providing such facilities.

In concluding, I must avail myself of the opportunity of expressing my appreciation of the valuable services which have been rendered by the National Gas Council and the British Commercial Gas Association, both of which are governed by men of broad vision and who have done magnificent work since the formation of these bodies. Our thanks are also due to the Technical Press, who have rendered good service to the industry in faithfully recording our proceedings and watching the trend of events which concern us. We have every reason to congratulate them on the high standard attained, and we fully appreciate the frank criticisms which appear from time to time.

What of the future? The outlook is very healthy, and we can face the future with every confidence, assured that the march of progress will be fully maintained if our united efforts are directed in bringing to the notice of the public the national and personal benefits offered by the industry, which it is both our duty and our pleasure to serve.

LONDON AND SOUTHERN DISTRICT JUNIOR GAS ASSOCIATION

Visit to the James Keith & Blackman Company.

On Wednesday, March 6, members of the London and Southern District Junior Gas Association, to the number of ninety, visited the London works of Messrs. James Keith & Blackman Company, Ltd.

The party were met at the Holloway Road entrance by Mr. A. J. Whyte (the Sales Manager), and were conducted round the works by Messrs. J. Angus, E. E. Tavener, W. S. Whetstone, G. Walker, A. H. Etheridge, W. Shepard, E. Burgess, E. Heather, H. S. Abrey, and L. E. Owers.

The various shops visited were in full operation for the manufacture of hot water boilers, gas and coke fired; gas compressors; high and low pressure gas burners; gas and air mixing apparatus; burners for bakers' ovens (for both bread and biscuits); high-pressure gas lamps; irons for soldering, tailoring, and laundries; gas boosting fans; air and gas blowing and exhausting fans; centrifugal and propeller fans for ventilation, dust, smoke, and fume removal, induced draught, &c. The machine, plate, and fittings shops were visited, and demonstrations were given in the photometer and experimental rooms.

In the fittings shop the members witnessed a series of experiments, by Mr. George Keith, who fully explained the effects of various mixtures of gas and air, their behaviour under varying pressures, and the practical effect of such, especially in relation to bread and biscuit baking.

Industrial heating of gas was explained, and the various systems were pointed out, of which there are three principal divisions, namely, low-pressure gas, air blast, and high-pressure gas—the latter standing out by reason of its simplicity both of regulation and control. The injector, it was pointed out, induced the amount of primary air necessary for correct combustion. Burners for use in connection with the "Keith" injectors could be supplied to suit any particular application, and some typical examples were given.

After the inspection the party adjourned to the "Camden Athenæum," and were entertained at tea by the firm.

At the conclusion, Mr. G. Keith said that, as representing Messrs. James Keith & Blackman Company, he very heartily welcomed this visit of the London Junior Gas Association to the Holloway Works. He only wished it were possible to show them over the works in Scotland where they had their foundries. He hoped that the visit had been of interest, and that they had been able to gain a few ideas concerning the efficient burning of gas.

Their work directly in connection with gas, which was only a small part of the whole of their activities, had been changing in its character since the last time they had had a visit from the Association. At that time they had not developed to such an extent on the industrial heating side. They would have observed that, though the firm was among the pioneers of the development of the applications of high-pressure gas, they did not confine themselves entirely to that system. They had now several systems, each of which had its own special advantages according to the conditions.

The industrial application of gas which they had particularly developed, and which at the present time represented a very heavy consumption of gas both in this country and abroad, was in connection with large bread and biscuit ovens, in co-operation with Messrs. Baker Perkins, Ltd.

Mr. A. J. Whyte said he would like to add a word to the welcome extended by Mr. Keith to the members of the London Juniors, he having a very happy recollection of the visit they paid some six years ago. He was especially pleased to see Captain W. J. Liberty and Mr. S. B. Chandler (both Past-Presidents) there that afternoon. Mr. Whyte then gave some interesting details of the firm's activities in connection with their lighting and industrial heating work. He made particular reference to the extent of the business done in industrial heating equipment supplied for the baking trade. The application of gas heating to baking ovens was comparatively new; and for a process new to gas, Mr. Whyte claimed that the progress had been very rapid and very advantageous to the baking trade, as well as to the gas undertakings throughout the country fortunate enough to number bread and biscuit bakers among their consumers. Information was given of the business done in connection with internally heated soldering irons for the tin box manufacturers. The change-over from either solid fuel stoves or gas fired stoves had resulted in economies, in some of the largest factories in the country, amounting to well over 50 p.ct.

Another of the firm's important activities was the supply of high-pressure irons and burner equipment for shirt and collar machines in commercial laundries. Interesting figures were given as to the development of the Keith patent drip-proof burner, which is used very largely by the catering trade. This is a low-pressure equipment, and one of the largest catering firms in the world employs over 2000 of the burners. Details and figures given of the employment of the Keith mixture control apparatus indicated the popularity of this appliance for application to many industrial heating problems.

The references made to the firm's well-known system of high-pressure gas lighting were well received, indicating the appreciation of the necessity of holding the lighting load.

Mr. W. Trevor Kensole, President (Lea Bridge Gas Company), thanked Mr. Keith for his interesting remarks and especially for his practical demonstrations. He proposed a very hearty vote of thanks to the firm for opening their works to the Association, and for their kind hospitality.

Mr. W. L. Westbrook (North Middlesex Gas Company) seconded, and Mr. Keith briefly replied.

WESTERN JUNIOR GAS ASSOCIATION.

Visit to Stroud Gas-Works.

About 30 members of the Association paid a visit to the works of the Stroud Gas Company on Saturday, March 2. They were welcomed at the Works by Mr. T. H. Woodcock (Engineer and Manager), after which a tour of inspection round the works was made.

Tea was provided through the courtesy of the Directors of the Company, and the party then adjourned to the showrooms.

A hearty vote of thanks to the Directors of the Stroud Gas Company was proposed by Mr. T. B. ARMITAGE, the President, and seconded by Mr. J. SPENCER (Weston-super-Mare).

Mr. WOODCOCK suitably replied on behalf of the Directors.

A FEW FACTS ON GAS VERSUS ELECTRICITY.

By C. BATEMAN, of Bath.

[EXTRACT.]

As a matter of interest I will just give you some figures in connection with my own Company during the recent cold spell.

In 1928 we actually had a slight decrease in consumption—namely, 18,322,000 c.ft., which is equivalent to 1·47 p.ct. for the year. This was entirely due to weather conditions, as you will remember that 1928 was an exceptionally mild year. This year in January alone we had an increased consumption of 21,176,000 c.ft., which is equivalent to 15 p.ct. over the corresponding month last year. Our record day was Saturday, Feb. 16, when we sent out 6,457,000 c.ft., an increase of 60 p.ct. over the corresponding day last year, and a record 24-hour consumption in the history of the Company. In February this year we had an increase of 28,040,000 c.ft., which is equivalent to 22·95 p.ct. over the corresponding month last year. This is notwithstanding the extra day in February, 1928.

A little while ago I happened to be spending a few days with a friend of mine. This gentleman has a fairly large house, and he informed me, in the course of conversation, that he had decided to change over from an all-gas to an all-electric house. On being asked the reason, he informed me that he thought it would be a much cheaper proposition. After a very lengthy argument, I induced him to withhold his decision until I had had a chance to go into the matter more closely, and to write putting the full facts before him. To this he agreed. I then obtained the charges for gas and electricity in the district, and what follows is an extract from the letter I sent to him.

There is just one point which makes the comparison rather difficult, and that is the residential tariff. In this case I have taken for a basis of comparison a normal middle-class house, and worked on the known gas consumption. I have then taken the amount of electricity which is equivalent to this amount of gas, and worked out the comparative costs—*i.e.*, 11d. per therm for gas and 1d. per unit for electricity, *plus* a fixed charge which is made according to the size of the house. You will note that the Power Company, when supplying the consumer under the residential tariff system, charge 1½d. per unit up to the amount of 25 units per quarter for each room, and 1d. for each additional unit. I have given our electrical friends the benefit in this case, and taken the charge as 1d. per unit, which, as you will see, makes a considerable difference.

LIGHTING.

Gas and electricity depend upon their heating value for their lighting efficiency. In the case of gas the mantle is the medium by which the heat is transformed into light, whereas, in the case of electricity, the filament is the medium whereby light is produced. With the gas mantle, 16 B.Th.U. are required to give a light equal to 1 C.P. per hour, and in the case of the electric filament 2¼ B.Th.U. are required to give the same light.

A B.Th.U. is the amount of heat required to raise the temperature of 1 lb. of water 1° Fahr. A therm of gas contains 100,000 B.Th.U., while a unit of electricity contains 3420 B.Th.U. Therefore a therm of gas will give $\frac{100,000}{16} = 6250$ C.P. per hour at a cost of 11d., or $\frac{6250}{11} = 568$ C.P. per hour for 1d.

A unit of electricity will give $\frac{3240}{2\frac{1}{4}} = 1520$ C.P. per hour at a cost of 6d., or 253 C.P. per hour for 1d. Electricity, therefore, costs in your case over twice as much as gas for lighting purposes.

HEATING AND COOKING.

For room heating a gas fire has a radiant efficiency of 55 p.ct.—*i.e.*, 55 p.ct. of the heat units in the gas consumed is radiated into the room. An additional 10 p.ct. is given off in convected heat, and the remainder, in escaping up the chimney, serves the useful purpose of aiding ventilation.

A therm of gas containing 100,000 B.Th.U., therefore, imparts 65,000 units of heat into a room at a cost of 11d., or $\frac{65,000}{11} = 5909$ units of heat for 1d.

In the case of electricity, assuming that no heat is lost through ventilation, and crediting the electric fire with 100 p.ct. efficiency, 3420 units of heat would be given into the room at a cost of 1d. Electricity, therefore, costs in your case about 1¾ times as much as gas for room heating.

WATER HEATING.

For water heating a gas geyser gives an efficiency of 90 p.ct. Therefore, for every therm of gas used for water heating 90,000 units of heat are transferred to the water at a cost of 11d., or $\frac{90,000}{11} = 8181$ units of heat for 1d.

In the case of an electric water heater, and allowing 100 p.ct. efficiency, 3420 units of heat would be transferred to the water at a cost of 1d.

Electricity, therefore, costs in your case nearly 2½ times as much as gas for water heating.

In regard to cooking, the relative efficiencies for boiling, roasting, and grilling vary, but it has been proved that taking the average requirements of a cooker, electricity costs 2 or 3 times as much as gas for general cooking purposes.

THE ACTUAL BILL.

Before giving the actual comparison of two houses, one using gas for all purposes, and the other electricity, you will bear in mind from the figures I have just given, that for lighting purposes, one therm of gas equals 4 units of electricity, and for heating and cooking, one therm of gas equals 18 units of electricity, this comparison being based upon heat units.

I have taken the average gas consumption of a house which I know, having six rooms where gas is used for all purposes. The gas bill would be as follows:

	£	s.	d.
For lighting—50 therms at 11d. =	2	5	10
For cooking and heating—350 therms at 11d. =	16	0	10
Total	£18	6	8

If electricity was used instead of gas, the bill would be as follows:

	£	s.	d.
For lighting—200 units at 6d. =	5	0	0
For cooking and heating—6300 units at 1d. =	26	5	0
Total	£31	5	0

Under the residential tariff system, the cost of electricity would be as follows:

	£	s.	d.
For lighting—200 units at 1d. =	0	16	8
For cooking and heating—6300 units at 1d. =	26	5	0
	27	1	8
Plus standing charge	3	12	0
Total	£30	13	8

As previously pointed out, I have not taken into consideration, in the case of the ordinary scale, that 1½d. is charged for the first 160 units in each quarter; and in the illustration given this would come to about 26s. 8d., and in the case of the residential tariff system 25s.

It will, therefore, be seen that the cost of electricity at ordinary rates and under the residential tariff system is 1¾ times as much as gas.

You will realize, of course, that under the foregoing conditions gas is at a distinct disadvantage, as the price of gas is rather high, and the charges for electricity are comparatively low. The electrical undertaking in question, as a matter of fact, is one of the largest, if not the largest, in the country, and is giving some of the best results on record.

Let us compare the electrical charges with the existing cost of gas in Bath, that is 5½d. per therm, which is exactly half the amount on which the comparisons have been based. We shall then see that the possibilities of gas are enhanced considerably, as in the case of lighting and heating, electricity would cost about four times as much as gas, and in the case of water heating practically five times as much.

I happened to hear the other day of a certain electrical undertaking putting forward what sounded like a very attractive proposition. It was roughly as follows:

AN APPARENTLY ATTRACTIVE SCHEME.

The undertaking would instal free of charge an electric water heater, the supply of current to come direct from the main, no meter to be used, the heater to be in continuous use, and the sole charge to be 25s. per quarter, this to be an inclusive cost to embrace consumption and maintenance. One is led to believe from this that there is a constant, unlimited supply of hot water day and night, and all for the sole charge of 25s. On

looking into it more closely, however, one finds that it is a snare and a delusion; for, to bring matters down to rock bottom, the heater is only capable of heating up 10 galls. of water from 60° to 160° Fahr. in 12 hours. On working out the cost of my own geyser, there is not the slightest doubt that the gas geyser is by far the cheapest and best method of quick water heating, as, of course, the supply of hot water is instantaneous, which is essential for an appliance of this description.

One must not overlook the fact in these comparisons that, as we all know, gas lighting has been proved over and over again a more suitable light than that from an electric bulb. There is also the inconvenience that if the filament burns out, one is plunged into immediate darkness, whereas with a broken mantle one can still have a certain amount of light. A complete failure of gas supply is practically an unheard-of occurrence, whereas several cases have been recorded where the electricity supply has completely failed, in some cases for a considerable time. Statistics also show that fatalities through accidental electrocution and fires through the fusing of electric cables are more numerous than cases of gas poisoning and fires traced to gas installations.

Unreliability of Electric Elements.

Then again with cooking—however skilful the cook may be, there is always the possibility of something boiling over or splashing. In the case of an electric cooker, if there should be any mishap, the heating element is immediately put out of action, which, apart from annoyance, to say the least of it, if this should happen in the middle of cooking a meal, is also a source of considerable expense. This is quite apart from the frequent fusing of these elements through normal wear and tear. Another distinct disadvantage of the electric cooker, apart from the cost, is, of course, the length of time required to boil anything or to bring the oven up to a suitable temperature.

The New Radiants.

I think, before going any further, something might be said about the new departure in gas fires—viz., the introduction of "Thermo-XX Beam" radiants. You have all, no doubt, seen this fuel in operation, and without going into the question more closely, you will agree that it makes a much more pleasing fire, even from casual observation, than it has been possible to obtain with the old type of radiant. Actually what has been attained by this new radiant is that the amount of short infra-red rays emitted from a fire has been considerably increased, thereby bringing the form of heat nearer to that of the sun, which is Nature's way of giving healthful heat.

Bearing the foregoing remarks in mind, I think you will agree we have some excellent propositions to put forward if we are allowed fair competition with electricity.

A most glaring instance of unfairness was brought home to me in a case in Bath quite recently. The Corporation, who are, incidentally, the owners of the Electrical Undertaking, built one of their so-called "Garden Suburbs" containing about 150 houses suitable for artisan tenants. Gas was being laid to all these houses for cooking and heating, and my Company offered to include in the slot meter installation the piping for lighting units, brackets, burners, mantles, and globes complete. The offer was refused, and the houses were all wired for electric lighting, at an unnecessary cost of roughly £10 per house, irrespective of whether the tenant wanted gas or electric lighting. An amount of 1s. per week is included in the rent for part payment for current used, and a further charge of 1d. per unit is made each quarter.

As a matter of interest, the first batch of houses was carcassed for lighting with a view to the tenants changing over to gas lighting. The Corporation heard of this, and we received instructions that such piping must not be put in, and we were asked to remove that which had already been installed. The latter we refused to do, but we were, of course, unable to carry out further installations.

Discussion.

Mr. T. B. Armitage (Cheltenham) stated that Mr. Bateman had come forward with a paper at very short notice, and the excellent result reflected great credit on the reader. One had expected a paper dealing with the manufacturing side of the industry, but Mr. Bateman had without doubt the qualifications of a salesman.

Mr. T. H. Woodcock stated that he wished to stress the point to all salesmen not to recommend a geyser which was too small, but one which would raise the temperature of the water quickly and efficiently.

Mr. S. S. Lloyd (Weston) said, in reference to "Beam" fuel, that this type appeared more efficient than the old, but his own experience had been that after a few weeks the brilliancy deteriorated.

Mr. S. Hole (Bath) stated that in connection with meter rents, he was of the opinion that the time had come for their abolition. Did tradesmen charge for the use of scales when selling goods by weight? It was usual for gas undertakings to charge for the laying of services, while electrical companies supplied cable free.

Mr. W. Barber (Cheltenham) stated that the brilliancy of the "Beam" fuel was not permanent.

Mr. A. W. Cullington (Stroud) proposed, and Mr. W. Limmer (Weston) seconded, a very hearty vote of thanks to the speaker for his excellent paper, to which Mr. Bateman suitably replied.

MR. F. W. GOODENOUGH ON SALESMANSHIP.

The British Commercial Travellers' Club held their second annual dinner at the Café Royal, London, on Friday last—Sir Herbert Morgan presiding.

Sir Wm. Crawford proposed the toast "British Trade."

Mr. F. W. Goodenough, C.B.E., Chairman of the Incorporated Sales Managers' Association, in the course of his reply to the toast, said: British trade is emerging steadily from a prolonged period of depression; but its progress is not so marked or so speedy as the quality of British goods and British brains would justify. British goods and British brains are second to none in the world; but the brains engaged in British industry are not all being applied as they should be to the most vital problem confronting it to-day. The great need of British trade at this juncture in our national history is increased efficiency in the marketing of the products of our factories and workshops.

Times have materially changed. We no longer have a virtual monopoly of the world's markets for manufactured goods. The customer to-day does not seek out the merchant. The merchant has to find out and secure the customer.

Increasing Competition.

To-day Britain's goods have to meet constantly increasing competition in the world's markets from the goods of nations who are closely rivalling her in design, in manufacturing skill, and in economical production, and are displaying marked energy, enterprise, and intelligence in marketing—*i.e.*, in discovering, securing, and retaining customers for their products.

Goods, however good—the very best goods—will no longer "sell themselves," except on a small and ever-diminishing scale, and will soon cease to find any market at all if they cannot be sold in sufficient quantities to keep down the overhead costs of production.

Scientific selling is the essential complement to scientific production and scientific management. All are necessary if we are to survive as a great industrial nation; but selling is the very foundation of industry. Unless we make ourselves an efficient nation of shopkeepers, we shall cease to be a nation of manufacturers.

Education for Salesmanship.

It may be said—it has been said more than once by those anxious perhaps to avoid a difficulty—that, like the poet, the salesman is born, not made. There is this amount of truth in the aphorism—that, unless a man have certain qualities of temperament or personality—unless he be sympathetic, amiable, and likeable, a good maker of friends, as well as efficient and capable of holding his own; unless he be naturally *suaviter in modo* as well as capable of being at the right moment *fortiter in re*, he will never make a first-class salesman.

But that is only part of the truth. The best of iron cannot make a good tool unless it be turned into steel and be tempered, hardened, and finally sharpened to a cutting edge; and so your "born salesman" must go through not only the crucible of experience, but that of education, both general and special, before he can be a first-class tool of perfect temper as well as perfect edge. That is why business men welcome so warmly the initiative the Board of Education has taken in the study of how to improve our selling efficiency by means of education, and the formation of the Committee of business men and women over whom I have the honour to preside.

None of us believes that education alone can make a salesman. The first-class salesman is a compound of character, ability, knowledge, and wisdom. While school and college life can help him to mould and develop his character and his abilities, and education can lead him towards wisdom through the study of the experience of others, as well as provide him with much knowledge that will be useful to him; only actual experience in the world of commerce, practical knowledge of the business in which he is engaged, and skilful training of him by his employer or the industry he is serving, can complete his evolution.

But do not let us content ourselves with considering the question of educating our salesmen. There is, to my mind, a still more important and more urgent problem that has to be faced—namely, that of awakening the manufacturers of the country to the need of a sound, live, active selling policy. That policy must originate in, and be the continual thought of, the boardroom.

REGISTER OF PATENTS.

Wet Meters.—No. 303,966.

PARKINSON & COWAN, LTD., of Kennington Road, S.E. 11, and THORP, F., of Stretford.

No. 30,805; Nov. 16, 1927.

This invention provides for an automatic valve which cuts off communication between the waste water chamber of the meter (which is under inlet pressure) and the horn pipe or sealing tube (which is under outlet pressure) when the level of liquid in the meter falls below a predetermined level, and there is a liability of gas passing from the meter inlet to such sealing tube and being withdrawn through the overflow plug connection, or passing from the meter inlet to the meter outlet through the space around said tube and the outlet pressure connection of such space.

The automatic valve may be operated by a float in the waste water chamber, or may itself be a hollow sphere which will float in the liquid, and if sufficient liquid is not present therein will close upon its seating.

Prepayment Mechanism.—No. 304,523.

THORP, F., and PARKINSON & COWAN, LTD., both of Kennington Road, S.E. 11.

No. 10,224; April 4, 1928.

This invention has for its object to provide an arrangement of mechanism which shall be efficient in action and less liable to fraudulent manipulation. It comprises a prepayment mechanism in which the part actuated by the inserted coin, so that it will engage a gear wheel of the mechanism, is prevented from engaging such gear wheel for a predetermined movement of the coin holder, during which movement a spring or springs is or are being loaded to cause a prompt engagement of the part with the wheel due to the reaction of such spring or springs when the predetermined movement is completed.

Intermittent Carbonizing Plant.—No. 304,859.

BOWATER, N. J., LYMN, A. H., and CHAMBER OVENS, LTD., all of Victoria Street, S.W. 1.

No. 29,825; No. 7, 1927.

This invention, relating to intermittent carbonizing plant, aims at removing smoke from the charging floor and discharging the same at a place where it is innocuous to the staff operating the plant, or the neighbourhood. It consists in withdrawing the smoke and fume from above, and in close vicinity to, the aperture through which the oven is charged with fuel, and in discharging it into a manifold connected to means for exhausting the same.

Dry Meters.—No. 305,341.

GLOVER, W. T., of Oldham, and METERS, LTD., of Manchester.

No. 35,022; Dec. 24, 1927.

This invention has for its object to provide improved means for attaching the flexible diaphragms to their rims. A further object is to provide convenient means for preserving the diaphragms.

The attaching means consists of an inwardly bent or turned-over part of the rim to which the diaphragm edge is to be attached, and an annular clip member, with or without a pressure ring within it. Within the clip member is an annular receptacle containing oil or other preserving or leather dressing fluid which obtains access to the diaphragm material by capillary attraction.

The invention further comprises the provision of means whereby the flexions of the edges of the diaphragm, due to the vibrations or reciprocations of the latter, occur at positions on the respective faces of the material that do not coincide, thus ensuring that the stresses set up do not occur at the same place in both directions of the diaphragm movement.

Regulating Valves.—No. 305,519.

YATES, H. J., of Grosvenor Place, S.W. 1, and HOWLETT & CO., LTD., of Birmingham.

No. 29,445; Nov. 3, 1927.

In accordance with this invention a gas regulating arrangement comprises inner and outer members, one of which is slidable longitudinally of the other, the slidable member having a plurality of grooves through which the gas passes, means for sliding the one member relatively to the other member so as gradually to cover or uncover said grooves, in combination with a second valve adapted to be actuated by the same mechanism for controlling the passage of gas through orifices in the outer member.

A further object is to provide a regulator which will be quieter in action than those constructed hitherto; and accordingly the edges of the outer member adjacent the grooves are rounded off to facilitate the entry of gas. The grooves which form the gas ports are of tapering form either in depth or in width or both. Alternatively the grooves may be formed so that some are longer than others, whereby in the sliding movement some are uncovered before the others.

The apparatus is preferably made in the form of a plug and tube; the plug fitting into the tube, and means being provided for imparting relative sliding movement between the two parts. This movement may be purely endwise or a combined endwise and turning movement.

The grooves may be parallel to the axis of the plug or helical. The end of the tube surrounding the plug may have its inner edge rounded so that on entering the ports the gas does not have to change direction too suddenly.

Operating Gas Producers.—No. 305,764.

CARPENTER, C., and the SOUTH METROPOLITAN GAS COMPANY, both of Old Kent Old, S.E. 15.

No. 34,119; Dec. 16, 1927.

The patentees point out that when a producer or like gas generator is to be clinkered, the bottom doors have to be opened and the gas outlet is opened to the atmosphere. The result is the escape of combustible gas, which generally amounts to a serious charge in the cost of working. The loss is minimized by this invention, which at the same time may benefit the man who performs the clinkering, relieving him of some of the radiant heat to which he was formerly exposed.

According to the invention, before the clinkering operation begins, the temperature of the fuel bed is reduced by substituting for the air blast a draught of elastic fluid which is either inert or reacts endothermically with the fuel. The supply of such gas or vapour may be maintained during the operation of clinkering, when, however, owing to the open doors, admission of air is unavoidable. In order to diminish the draught during clinkering and thereby keep the temperature of the fuel bed comparatively low, the hot gas above the fuel bed may be swept out of the producer by a current of comparatively cold and preferably inert gas or vapour admitted above the fuel. By either or both of these expedients the loss of fuel during clinkering is much diminished.

Products of combustion from a boiler furnace constitute a suitable gas for use in the invention, preferably after they have been treated to free them from acid constituents other than carbon dioxide.

In restoring the producer to normal working it may be necessary to provide for a temporary blast containing a higher proportion of free oxygen than the normal blast contains.

The invention is particularly applicable to producers in which the gas is taken off directly above the fuel bed, so that there is minimum space for gas which is exposed to radiation from the surface of the fuel bed.

Burners.—No. 305,786.

KEMPTON, C. H., of Westminster Bridge Road, S.E. 1, and BISSELL, W., of Warwick.

No. 590; Jan. 7, 1928.

This invention has for its primary object to provide an improved and simplified gas burner designed to give a more complete, efficient,

FIG. 1.

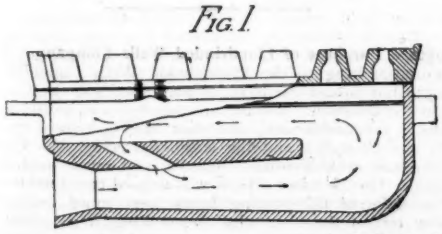


FIG. 2.

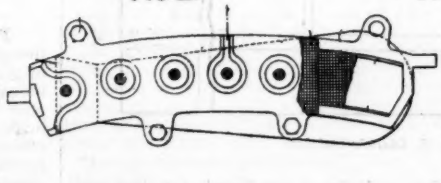
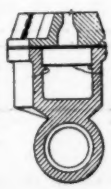


FIG. 3.



Kempton & Bissell's Gas-Fire Burner.

and economical mixture and combustion of the gas and air, and also to ensure that the supply of mixture to all the burner nozzles shall be equal.

The burner of the invention is provided with a downwardly inclined passage leading from the mixing chamber at a position adjacent the end thereof opposite to that at which the gas mixture enters from the supply tube, and opening into the supply tube in the direction of flow of the gas mixture; the connecting passage being arranged at such an inclination and being so positioned in relation to the constricted or choke portion of the supply tube that the flow of air and gas mixture through the supply tube creates a drop in pressure in the connecting passage, whereby a part of the mixture in the mixing chamber is withdrawn therefrom and re-circulated through the supply tube. The invention is especially applicable to burners wherein the mixing chamber is provided with one or more perforated baffle plates or sheets of wire gauze arranged to assist the mixing action and reduce back-fires.

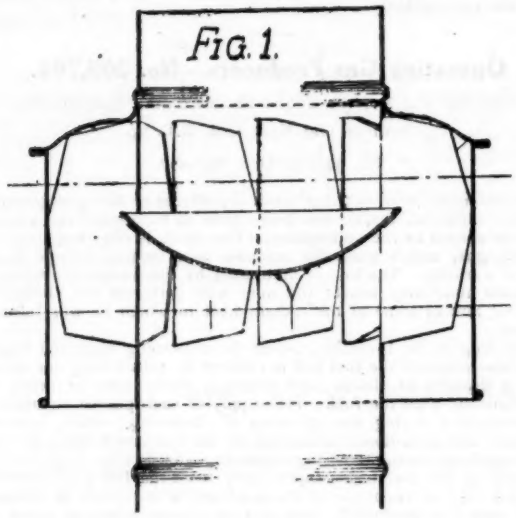
Fig. 1 is a part-sectional side elevation of a burner according to the invention; fig. 2 is a plan, part of the cover of the mixing chamber being broken away; and fig. 3 is a cross-section on the line 3—3 of fig. 2.

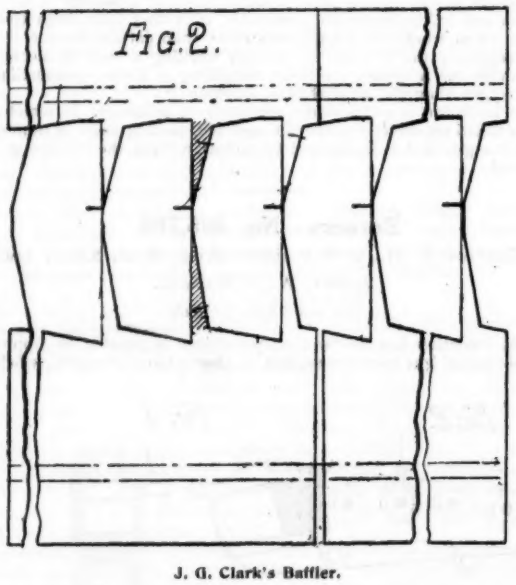
Baffles.—No. 305,809.

Gas Light and Coke Company and Clark, J. G., both of Horseferry Road, S.W. 1.

No. 3684; Feb. 6, 1928.

This invention relates to a down-draught baffling device of the kind wherein an inner tube carrying a baffle device or plate is spaced apart by stays from a member surrounding the inner tube. The invention has for its object to provide an improved construction of baffle device as well as a method of making the same.





J. G. Clark's Baffler.

According to the invention, a device of the broad type aforesaid is provided wherein any down-draught is deflected by a baffle plate through openings in the wall of the inner tube into the space between the said inner tube and the outer casing or tubular member. The baffle plate may be positioned intermediately or midway of the length of the openings or at any suitable position in such length. The gaseous products of combustion flow up through the inner tube, strike against the baffle plate, and are deflected thereby through the aforesaid openings into the space or spaces between the inner tube and the outer casing from which space the products flow inwardly through the same openings but above the deflector plate into the inner tube, and thence through an extension thereof to the atmosphere.

The baffle plate may be of any suitable form; but it is preferred that the under surface be of an approximately stream-line form and of convex curvature downwards, the upper surface being flat, curved, or of correspondingly concave form, and the rim of the plate extending beyond the outer diameter of the inner tube so that the upper surface may act as a collector for condensate.

The outer tubular member or casing, which is of hollow cylindrical form as usual for the major portion of its length, is provided with an inwardly tapering top of stream-line or approximately ogee form, so as to facilitate the flow and escape of the products.

This outer casing is supported by fins or ribs on the upper edges of which its tapering portion rests. The outer edges of the fins are preferably of arcuate or polygonal form; and the outer casing may be a push or driving fit on them.

The fins or ribs are broadly of outwardly converging conicity, and may be formed as rigid attachments to the inner tube; but it is preferred that such fins be integrally formed with the inner tube. In such an arrangement the use of rivets, screws, or other securing means is avoided because the fins are slit intermediate of their lengths, and the slit portions are turned or bent to either side in such manner that they form supports for the arcuate cup-shaped or saucer-like baffle or deflector plate.

Fig. 1 is a vertical section; and fig. 2 is a plan of portion of a blank or metallic sheet slit in accordance with the method of the present invention to form the improved down-draught baffling device.

APPLICATIONS FOR PATENTS.

[Extracted from the "Official Journal" for Feb. 27.]

Nos. 5298—6055.

Cross & Son, Ltd., W.—"Gas heated smoothing irons." No. 5836.
Kirby, J. I.—See Cross & Son, Ltd., W. No. 5836.
Maclay, J. A.—"Gas fires." No. 5987.
Main, Ltd., R. & A.—See Maclay, J. A. No. 5987.
Piette, O.—"Dry cooling coke." No. 5823.
Rude, J.—"Process for dry cooling coke." No. 5750.

[Extracted from the "Official Journal" for March 6.]

Nos. 6056—6886.

Maschinenfabrik Augsburg-Nurnberg Akt.-Ges.—"Telescopic gasholders." Nos. 6270, 6271.
Meters, Ltd.—"Dry gas meters." No. 6865.
Sides, H.—See Meters, Ltd. No. 6865.

[Extracted from the "Official Journal" for March 13.]

Nos. 6887—7792.

Brandl, H.—"Wet gas meters." No. 7762.
Brassert & Co., H. A.—"Continuous gas drier." No. 7121.
Chamberlain, J. A.—"Consumption recorder for gas meter." No. 7549.
Drake, J. W.—"Vertical retorts for manufacture of coal gas." No. 7396.
Drakes, Ltd.—See Drake, J. W. No. 7396.
Forbes, A. H.—"Gas valves." No. 6946.
Ham, Baker, & Co., Ltd.—See Forbes, A. H. No. 6946.
Jennings, W. F.—"Gas compressors." Nos. 7187, 7188.
Klonne, A.—"Sealing pistons for reservoirs for storage of gas." No. 7316.
Marischka, C.—See Brandl, H. No. 7762.
Marks, Sir G. C.—See Brassert & Co., H. A. No. 7121.
Mautner & Co., A.—See Brandl, H. No. 7762.
Mitchell, J.—"Gas burner." No. 7578.
Pinhey, D. C.—See Forbes, A. H. No. 6946.
Schurmann, F.—See Klönne, A. No. 7316.
Wagner, R.—"Disc gas container." No. 7368.
Wallace & Tiernan Co., Inc.—"Gas supply apparatus." No. 7687.

Proposed Purchase of Llandrindod Wells Company.—The offer of the gas undertaking to the Llandrindod Wells Council at the sum of £22,750 has forced the issue of purchase, and the Council is not united on the question. On the one hand it was considered that the offer was a favourable one, and that having regard to the profits made by the Company and the economies which the Council could effect, purchase was desirable. Gas is very much used in the town for cooking. On the other side, it was argued that further speculation should be deferred till existing loans were much reduced. As the town now owned the electricity undertaking it was thought better by some to allow the Company to proceed, thus continuing healthy competition.

PARLIAMENTARY INTELLIGENCE.

[From Our Special Correspondents.]

HOUSE OF LORDS.

Gas Undertakings Bill.

The Committee stage of the Bill was taken on Tuesday, March 12, when a number of drafting amendments were carried. Lord Banbury moved amendments to protect the interests of existing debenture holders; but in view of the Earl of Lucan's explanation—that these lenders already had priority in regard to nine-tenths of the companies concerned—he eventually withdrew them. Lord Banbury has, however, put down a modified amendment on the same point for the report stage of the Bill, which was on the Order Paper for March 19.

[Points from the Lords' debate in Committee are set out below.]

Private Bills.

The Sheffield Gas (Consolidation) Bill passed its third reading, and was sent to the House of Commons, where it is now awaiting second reading in that house. The Standing Orders in the case of the Imperial Continental Gas Association Bill have been dispensed with, and the petition for the Bill referred to the Examiners. The South Suburban Gas Bill passed its third reading on March 18.

HOUSE OF COMMONS.

Compensation for Street Explosions.

Sir R. THOMAS asked the Chancellor of the Exchequer whether in cases where shopkeepers and traders have suffered losses as a result of street explosions, and where liability cannot be attached to any particular public or private authority, he would consider the question of allocating some grant-in-aid towards the assistance of such financial sufferers. Mr. SAMUEL said he could not undertake to assume any liability on the part of the taxpayer in such cases.

GAS UNDERTAKINGS BILL.

House of Lords—Tuesday, March 12.

The Bill was considered in Committee to-day, when a series of amendments was proposed, and some of them agreed to.

PRIORITY OF EXISTING MORTGAGES OR DEBENTURES.

In the course of the proceedings,

Lord BANBURY OF SOUTHAM moved to add to sub-section (1): "Provided that any such mortgage or any debenture stock so created and issued shall rank both for principal and interest after any existing mortgage or debenture stock." This, he said, was a very important amendment, which touched the security on which millions of money in various undertakings had been lent by trustees and others. The extraordinary thing was that Clause 2 of the Bill read:

> "Undertakers, not being a local authority, may borrow on mortgage of their undertaking, or by the creation and issue of debenture stock, any amount not exceeding one half of the aggregate amount of the paid up share capital for the time being."

This was contradicted by Clause 1, which gave power to raise an equal amount of mortgage or debentures to the amount of the share capital—that was to say, it doubled the amount that might be raised.

The Earl of LUCAN replied that the amendment was really at the present moment covered, to the extent of about nine-tenths of the companies, by the Bill as it now stood. It had been ruled that lenders under a former Act of a company would have priority over lenders under the present Bill. The only exceptions to this were some companies where the enactment was made under the Companies Clauses Act, which was modified by Clause 14 of the Model Act, which enacted that money borrowed on a subsequent occasion should rank *pari passu* with that of lenders on a former occasion. But even in that case the original lenders knew perfectly well what was their liability with regard to any further money that might be raised for the purpose of the gas company. With regard to the large majority of the gas undertakings in the country, the conditions upon which money was borrowed would remain exactly the same, even if the amendment were put in. They would have priority over anybody who lent money under this Act. Nothing could happen in the way of borrowing money except with the consent of the shareholders themselves.

The LORD CHANCELLOR said that a certain number of companies had in their Special Acts what was known as the "model clause," under which it was provided that mortgages should rank *pari passu* with any mortgages created under the Act in question or any subsequent Act. In those cases the lenders had lent with the express notice that there would be subsequent Acts which would extend the mortgage clause, and the money so issued under that subsequent Act would rank *pari passu*. If the amendment were passed, its effect would be to destroy the position created in all those Private Acts, and to take away from those companies the rights which they had in their "model clause," and to confer upon the existing mortgagees or debenture holders in the companies a right which they had not bargained for, and which they had not got. Therefore the Government thought it was better to leave the matter as it stood, thinking it clear that in the great majority of cases where there was no Special Act containing the "model clause" the provision was unnecessary, and in the cases where there was in existence the "model clause" the provision would be unjust.

Lord BANBURY suggested to the Lord Chancellor that he should give an undertaking that he would, between now and the report stage, consider an amendment which would have the effect of his own amendment, while leaving the model clause as it was now.

The LORD CHANCELLOR replied that any suggestion of that kind would be carefully considered. This clause merely allowed an increase in the borrowing powers, but it said nothing about the borrowing powers so created ranking *pari passu* with the existing ones.

Lord BANBURY intimated that, on this understanding, he would not press the amendment. The point could be met by saying that it should not rank *pari passu*. It was necessary that something of this sort should be put in, because any ordinary person reading this would come to the conclusion to which he himself had come.

The amendment was then by leave withdrawn.

PARLIAMENTARY CONTROL.

Lord BANBURY next moved to omit Clause 1.

The Earl of CRANBROOK, supporting this amendment, said that before 1920 gas undertakings that wished to raise new capital had to promote a Private Bill in Parliament. Since 1920, under the Gas Regulation Act, they had been able to obtain new capital by a Special Order requiring the assent of Parliament. Apparently, under this clause, the Ministry could authorize new capital to be raised without any assent of Parliament. He objected to this from the point of view of the local authorities, and particularly from the point of view of the London County Council. Before 1920, in Acts affecting London, the London County Council could raise questions of public interest before Parliament, and since 1920 they had been able to raise those questions before the Board of Trade, and also before Parliament. Now, apparently, the Council were not to have any chance of putting their point of view before Parliament; and the Board of Trade were to have the last say.

The Earl of LUCAN remarked that this clause, no doubt, did away to a certain extent with parliamentary control; but this was strongly recommended by the National Gas Council to the Committee to whom it was referred. The reason it was strongly recommended was in order to save the gas companies expense. The present Bill was being promoted by the Board of Trade on the strong recommendation of the National Gas Council, who, he understood, represented some 90 p.ct. of the gas sold in the country. It would be very much more expensive for the companies—especially the smaller companies—to obtain power to raise their capital by a Bill or Special Order, and therefore this form of procedure by means of Departmental Order was recommended. Although parliamentary control was lost to a certain extent, these companies could not get facilities for raising their capital without going to Parliament; and one of the objects which the National Gas Council had was to compel the companies to go to Parliament periodically. No Order was made by the Board of Trade unless the company did go to Parliament; and if they had not been to Parliament for fifteen years, it was not given at all. By an Order relating to share capital, an increase in the authorized amount might be given sufficient for a period of three years. Thus, though parliamentary control was lost in one way, there was more control of the companies in another. The increase of the borrowing powers of undertakings was the full amount of paid-up capital. This was recommended by the Public Control Committee of the London County Council when reporting to the Council in May, 1928; and it was suggested with regard to the Metropolitan companies that it would be a good thing to give the companies power to increase their capital to that extent.*

After further discussion, Clause 1 was agreed to.

FAILURE TO PROVIDE MAINS IN AN AUTHORIZED AREA.

Lord BANBURY moved to leave out Clause 6. He argued that Company A having received power from Parliament to construct gasworks and supply gas in a certain area, the Board of Trade might come down and authorize somebody else to supply gas in the area already allotted to Company A, if Company A had failed to lay down or provide mains for the supply of gas in the area. They then might prohibit Company A from exercising in the area any of the powers conferred on them in respect of their undertaking. At the end was a proviso that no Order should be made in relation to any area unless five years had elapsed from the date when the undertakers first obtained their powers. If it was argued that Company A had neglected their duty, then the Courts of Law should be the people to interpret that.

The Earl of LUCAN replied that a similar clause to this was inserted in nearly all Gas Bills, because sometimes undertakers, who had power over a certain area, were for some reason unable or unwilling to carry out the work; and it was very desirable that residents in the district should not thereby be deprived of gas. No injustice would be done to any company.

The amendment was negatived.

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* The report referred to was published in full in the "JOURNAL" for May 30 last.—Ed. "G.J."

MISCELLANEOUS NEWS.

EUROPEAN GAS COMPANY, LTD.

Annual General Meeting.

The Annual General Meeting of the Company was held on Tuesday, March 12, in the Middlesex Room, Great Eastern Hotel, Bishopsgate, London, E.C., Dr. Charles Carpenter, C.B.E. (Chairman), presiding.

The General Manager and Secretary (Mr. F. Eliot Williams) read the notice convening the meeting.

The report of the Directors and the statement of accounts for the year ended Dec. 31, 1928, and the Auditors' certificate, were taken as read.

The Chairman, moving the adoption of the report and accounts, said: The year 1928 has been one of considerable industrial and commercial prosperity in France, and the very interesting report on Economic Conditions by Mr. Cahill, the Commercial Counsellor at the British Embassy at Paris, indicates that not only was home trade extremely active, but export trade was equally flourishing; unemployment was practically non-existent; and the available indices of production attained hitherto unrecorded levels.

This commercial and industrial prosperity has had a favourable effect on the business of gas supply, and the fact that the franc has remained at a steady figure, coupled with its legal stabilization, has removed the difficulties with which this Company has had to contend for several years past owing to the fluctuations in exchange which were constantly occurring.

It has, therefore, been possible to re-convert the Company's franc loan into a sterling loan, and thereby discontinue an arrangement made for obviating the disturbing influence of variations in the value of the franc. This has simplified both our accounts and our financial operations.

The sale of gas (as stated in the report) shows an increase at the rate of 4·77 p.ct., and the decrease of 1927 has thus been very nearly made good. There is, in the opinion of the Directors, an extensive field of gas consumption still untapped in France, and they firmly believe that with patience and energy it should be possible largely to increase the present sales. The official organs of the gas industry in France have recently initiated measures for general propaganda purposes throughout the country; and if these have the success which it is reasonable to hope for, considerable development of our business should result therefrom. The French consumer is, however, very conservative, and the development is likely to be slow in coming. We have ourselves been building up a commercial organization for several years past, and welcome the initiative of the French gas organizations, to which we will give our support in every way.

As regards working results, perhaps the most satisfactory feature of the year is the fact that the Board are able to record a substantial reduction in the amount of gas unaccounted for. During and since the war, this loss has, almost without exception, risen steadily year by year. As reported to the shareholders from time to time, the problem has been tackled methodically, and at last the sustained efforts of the last few years seem to be having their effect. In 1928, the year under review, not only was the percentage of unaccounted-for gas lower, but the absolute quantity unaccounted for was less than in any year since 1923.

Needless to say, however, our officials are not relaxing their efforts in this direction; and we hope that, in addition to reducing this loss to a more normal figure, the precautionary measures which are now being taken, and the greater supervision which is being exercised, will allow of the system of mains being kept at a higher standard of efficiency in the future.

As regards our works, the holder at Roche Maurice, on the site of the new works for supplying Nantes, has been completed. The connecting main between the two stations has been laid over the greater part of its length, and we shall shortly commence the erection of a governor house on the new site. The main will then be completed and the holder put into action. The Strache plant at Nantes, to which reference has previously been made, was completed and started during the year 1928; but although it is proving a useful auxiliary, it is not yet working to the complete satisfaction of our engineers.

It has been mentioned to the shareholders on a previous occasion that the extraction of benzole from the gas is now obligatory in France by Government decree, and it will eventually be necessary to instal plants for the purpose at all the Company's stations. A commencement has already been made at Boulogne and at Havre, where the installations are already at work and where benzole of good quality is being produced. The Boulogne installation is what is known as the active carbon process, while that at Havre is an oil-washing system, certain of the necessary plant being already in stock, as benzole was extracted there some years ago as a war measure. At Caen a new retort house has been completed and put into action.

With this exception, the bulk of our repair work has been confined to our distributing system, and from this expenditure we can confidently hope for a good return.

Certain Government measures have been enacted during the year affecting the staff and workmen which have involved modifications of the Company's regulations on this subject.

In the first place, it has been made compulsory for public utility undertakings like ourselves to adopt definite statutes containing in detail the terms of employment of their staff and workmen, regulations as to holidays, sick pay, pension arrangements, and so forth. These statutes, when agreed with the employees and the Municipalities concerned, must be incorporated in the treaties of concession by the conclusion of a supplementary agreement. A draft form of regulations has been prepared in conjunction with our Managers in France, and negotiations are now proceeding with our employees at the different towns and with the municipal authorities with a view to the definite adoption of these regulations.

In the second place, a Social Insurance Law was promulgated on April 5, 1928. This provides for a compulsory contribution by the employee of 5 p.ct. of his wages, or salary, and an equal contribution by the employer. It is intended to provide sickness benefit, maternity benefit, invalidity pensions and old age pensions, &c., from the funds thus created, and steps have already been taken to bring the existing rules of our different works' sick funds into harmony with the new law. The pensions schemes which have been approved in the past by the shareholders will be recast to avoid overlapping and duplication of payments—that is to say, under our own scheme and under the Government scheme.

It will also be necessary to make other arrangements in place of existing ones, which provide for the payment of pensions direct by the Company, owing to the fact that under the new law the payment of pensions direct will only be permitted under very stringent monetary guarantees which it is desirable to avoid. The stabilization of the franc, and the removal of the restrictions which have hitherto existed on the provision of pensions guaranteed by the State, will simplify the general re-casting of our pension arrangements. The Board have laid down the lines to be followed, which are based on the practice hitherto followed by the Company in its treatment of its employees, and the whole matter is being thoroughly examined in conjunction with a French expert recommended by the Company's legal adviser in Paris. We shall at the same time take the opportunity of laying down more definite regulations governing the eventual retiring allowances of members of the London staff.

I have referred upon previous occasions to the steps which have been taken since the war to bring our organization up to date and to render the machinery as efficient as possible, and I think, in justice to our officers who have worked so hard to bring this about, that I should give a brief résumé of what has been done in the way of building-up and reconstructing our organization to meet the altered conditions of post-war times.

The first problem which arose after the war was the necessity of bringing the prices of gas into line with the increased cost of production, and of providing suitable sliding scales for this purpose. This involved, first of all, the fixing of provisional prices to enable us to carry on for the moment, and then the negotiations of entirely new contracts with all our towns and communes. The only town where a final settlement is still outstanding is Amiens. I cannot refrain from re-affirming our appreciation of the fair and sympathetic attitude our French friends displayed in discussing and meeting our proposals.

This work having been completed, our attention was directed to the need for the provision of fuller information with regard to the current technical workings and results, and the necessary steps were taken to this effect and completed during the year 1927.

In the course of this work it became clear that the system of accounts hitherto in force did not, with sufficient rapidity, provide the Board with details of the financial results, and, in conjunction with Messrs. Price, Waterhouse, & Co., a new scheme of accounting was worked out and put into operation at about the same time.

We were thus provided with full information month by month as to the technical and financial working of each individual station, but we lacked a systematic technical co-ordination between the Head Office and the Stations and between the Stations themselves. This gap has now been filled by the appointment of a *liaison* engineer attached to the Head Office, but resident in France.

I think that we may say, therefore, that the final stage in the post-war re-organization of the Company is now completed. Much remains to be done in the way of developing the organization which has been created, but the foundations are there; and I have great hopes that this last step will be of the greatest benefit to the Company in improving the technical workings, with consequent advantage to the financial results.

With regard to the balance-sheet, there are certain changes to be noted which are the consequence of the arrangements mentioned on the occasion of the last general meeting.

Insurance and guarantee fund is reduced from £81,954 to £55,586, owing to the transfer of the unrequired portion of that fund to pension fund, which appears as a new item and stands at £33,352. For the same reason, investments, which stood at £274,084, are now split into two items; investments standing at £251,498, and pensions fund investment standing at £30,852.

The bank loan has been reduced during the year from £65,903 to £28,000, while cash in hand, which stood at £40,978, now stands at the more normal figure of £3974.

General revenue is increased from £10,816 to £22,476, due to the transfer of last year's balance of profit and loss. Following previous practice, it is proposed again to transfer the balance—on this occasion £6085—to general revenue.

Other variations in the balance-sheet are of a normal nature, and do not appear to call for comment.

The profit is about the same as in 1927, and justifies the payment of a slightly higher dividend. The Board accordingly recommend

a final dividend of 3½ p.ct. following an interim dividend of 2 p.ct., making 5½ p.ct. for the year, free of income-tax, as against 5 p.ct. for the year 1927.

The report further informs you that Mr. W. B. Brady, one of your auditors, has felt it incumbent upon him to resign his position for reasons of health. Mr. Brady served the Company for 39 years, of which nine were as Secretary and, on his retirement, a further nine as Auditor.

In filling the vacancy, in accordance with the Articles of Association, until the next general meeting, the Board were mindful of the observations made some years ago as to the desirability, when next a vacancy should occur, of appointing a chartered accountant, and they have appointed Mr. B. Dennett Holroyd, who, in addition to being a F.C.A., has the advantage of already having experience as an auditor of gas companies' accounts.

Before I conclude I must say a few words about the rumours which are current concerning the future of this undertaking.

In January of the present year an article appeared in a financial journal indicating that there was a possibility of the fusion or absorption of the Company. As this was the first that your Directors had heard of any suggestion of the sort, a communication was sent to the journal concerned to the effect that their assumption was not justified, and as Press statements of this nature were, in the opinion of your Directors, calculated to have a disturbing effect on the minds of the Municipalities in France where the Company has concessions, the following communication was sent to the "Times" and the Stock Exchange:

> "The Directors of the European Gas Company announce that they have no knowledge of any negotiations for absorption or of other special developments."

Since then, however, approaches to me to know whether I was prepared to listen to a proposal for the purchase of the assets of the Company, or some part of them, or for the purchase of a controlling interest in the shares of the Company, have been made. I have said that while the Board have had no idea of disposing of the business, they would, of course, as guardians of the interests of the Company, feel it their duty at any time to consider any serious and responsible proposition which was made to them.

Then heavy buying of the Company's shares began to take place; and as I knew that any offer which the Directors could consider would necessarily be such as to justify a price for the shares substantially in advance of the price which was at that time ruling, the Board thought it well to give to the shareholders information as to the position. The Board therefore issued the following notice to the shareholders:

> "I am instructed to state that since the recent announcement made by the Board to the Press, an inquiry has been received as to their willingness to entertain an offer for the purchase of the Company's interests in France; in these circumstances, and pending a decision by the Board, shareholders will no doubt await a further communication before disposing of their holdings."

Since then the Board has had some further preliminary, but only preliminary, inquiries from the parties concerned. At present no offer has been made, and no price has been discussed or even mentioned. Statements in the Press or elsewhere that any bargain has been made, or even that negotiations have proceeded further than I have just indicated to you, are unauthorized and untrue.

Shareholders may rest assured that, if and when the time comes that a further announcement in the interests of the shareholders as a whole can properly be made, it will be done.

I have now to move that the report of the Directors and the statement of accounts for the year ended Dec. 31 last be received and adopted.

Mr. FRANK H. JONES (Deputy-Chairman) seconded the resolution, and said he would like to add, as one who had been connected with the Company for more than 25 years, first as Engineer and latterly as a Director, that it was gratifying to know that the Company was getting back to something like its pre-war prosperity. If some of the shareholders could have seen the works as he had seen them at the end of the war, they would have thought it doubtful that within so few years the Chairman could have made a statement such as he had just made, and they would not then have believed that by the present time the Company would be paying a dividend of 5½ p.ct.

Mr. STANLEY PEARSON (a shareholder) asked the Chairman if he still advocated that the shareholders should continue to hold their shares.

Mr. R. BLAKE BUDDEN asked if the Chairman could add anything more to the statement in the circular to which he had referred, in which it said: "Shareholders will no doubt await a further communication before disposing of their holdings." At the present price of these shares, he said, there was, of course, a substantial temptation, and he asked if the Chairman could say more as to the justification for the phenomenal rise in their price.

The CHAIRMAN said that even supposing there were any truth in the suggestion that the Directors were about to receive an offer, the Directors knew perfectly well that they could not entertain any offer at anything like the price that was ruling at the time of that circular—namely, about £11 10s. They knew that, whatever happened, that would not be the price at which they would consider any question of purchase or disposal or amalgamation or any change in the policy of the Company, and therefore they had thought it their duty, when reminding the shareholders and informing them of the facts, to make it clear to them that any price they would consider would be substantially in advance of the price that was then ruling. They could not continue—it was impossible—to advise shareholders as to what course they should take with regard to their holdings; it was quite beyond them to express any opinion of that kind. In his view they went to the extreme limit of their duty and their obligation when they had told the shareholders that, at any rate, the price then ruling would not be the price at which they would consider an offer. What might happen eventually he could not say, and no member of the Board could say. For the best part of a century the Company had been carrying on the business of supplying gas to various important towns in France. The Directors had never had the undertaking valued because it had never been necessary to value it. The Board had no offer before them at present, and he could not say what the undertaking was worth. The shareholders must form their own opinions; they only could take the responsibility of forming a judgment as to what they should do in the present circumstances. Beyond that, he could not go. There had been no offer, neither had there been any negotiations, and the shareholders were in almost the same position as the Board. He was sorry to say that, though he had every desire to help, he could not assist them with any suggestion as to what they should do at the moment. All he could say was that if the Directors did receive an offer, and if as a result of it serious negotiations took place, they would act in the best interests of the shareholders, and would in due course call them together to consider the proposals. The recent buying and selling of these shares appeared to him personally to be a wholly speculative matter.

The resolution for the adoption of the report and accounts was carried.

DIVIDEND.

On the motion of the CHAIRMAN, seconded by Mr. FRANK H. JONES (Deputy-Chairman), the following resolution was carried:

> That the interim divdend of four shillings per share, paid on Oct. 1 last, *less* fourpence per share for French Stamp and Transfer Duty in respect of all shares held in France, is hereby confirmed. That a final dividend for the year ended Dec. 31 last at the rate of seven shillings per share be now declared; such final dividend on all the shares of the Company to be paid on March 30 next, the whole out of interest and profits and free of income-tax, subject, however, to a deduction for French Stamp and Transfer Duty of sixpence per share in respect of all shares held in France.

RE-ELECTION OF RETIRING DIRECTORS.

Mr. FRANK H. JONES, proposing that Dr. Charles C. Carpenter, C.B.E., D.Sc., M.Inst.C.E., and Mr. A. M. Paddon, M.Inst.C.E., be re-elected Directors of the Company, said that the Board had had a very difficult time during the past few years in getting the works and the business into proper order, and these two gentlemen had carried out their duties extraordinarily well. He assured the shareholders that they would be doing the wise and right thing in re-electing them to the Board for another period, and he had much pleasure in moving their re-election.

Mr. W. G. BRADSHAW, C.B.E., seconded the resolution with much pleasure and equal confidence.

The resolution was carried.

The CHAIRMAN, expressing his thanks for the honour the shareholders had done him by re-electing him, said that the work he had done for the Company during the last few years had been exceedingly interesting, because it had meant practically the reconstruction of the Company's business abroad. As the result of the war the various works, and especially the distributing system, had got into a bad state, but he was glad to say that at present the undertaking was one of which technically he considered anyone would be proud. After all, if the Board had done that, they had fulfilled their greatest obligation to the shareholders.

Mr. PADDON, who also expressed thanks, said he was pleased to be associated with Dr. Carpenter in these circumstances. There was one thing they had in common—namely, that they had both spent the whole of their lives in the gas industry.

RE-ELECTION OF AUDITORS.

The Auditors (Messrs. G. C. Goldsmid and B. Dennett Holroyd, F.C.A.) were re-appointed on the proposition of Mr. R. BLAKE BUDDEN, seconded by Sir FREDERICK FRY. The re-election was acknowledged by Mr. HOLROYD.

VOTES OF THANKS.

The CHAIRMAN moved that the best thanks of the meeting be given to the staff of the Company, both in London and abroad, for their services during the past year. He supposed that on the whole no one knew more about the staff than he did, because he saw them from an angle different from that from which the Manager saw them, though the Manager was continually in touch with them, and he (the Chairman) believed that he was better able to form a judgment with regard to them. The staff in France were the admiration of all their colleagues there. The standing of the European Gas Company and all its staff was exceedingly high. He could assure the shareholders, from his intimate contact with the Company's chiefs abroad, that they had every reason to be proud of them, and every reason to give them their fullest confidence. All that he had said of the French staff he could say equally unreservedly of the London staff. The task on which Mr. Williams (the General Manager and Secretary) and his colleagues had been engaged during the whole of the past ten years had been an exceedingly difficult one. Every year seemed to have brought its crop of difficulties, but at present the organization was one of which the shareholders might be proud. It was functioning to the present advantage of the Company, and he believed would play an important part in building up the position which he felt confident the Company was bound to occupy in the future. The Company were on good terms not only with the London staff, but with the staff abroad, and were on exceedingly good terms with the various municipalities in the towns supplied with gas. It was pleasing and satisfactory to be able to say that, though they were an English Company supplying a public necessity in these various French towns where they were

holding concessions, their relationship with the municipal authorities concerned was an exceedingly pleasant and happy one.

Mr. FRANK H. JONES (Deputy-Chairman), who seconded, said that the Chairman's tribute to the staff was particularly well merited, and would be received with gratitude.

The vote of thanks was carried.

Mr. WILLIAMS (General Manager and Secretary) expressed gratitude on behalf of the staff both in London and abroad, and said that it was a source of encouragement, particularly to the staff in France, who were not closely in touch with the English shareholders, to know that their efforts were appreciated. On previous occasions he had expressed disappointment because, in spite of a good deal of hard work on the part of the staff, they could not show the results they would like. That hard work was now beginning to be reflected in the results; and he was proud to be at the head of the present organization. It was a most efficient machine.

Mr. R. M. LONG proposed a vote of thanks to the Chairman and Directors for their services to the Company during the past year, and for the report that had been put forward. They had passed through a stormy time during the war and since, and the results of their efforts had given the shareholders confidence for the future.

The vote of thanks was seconded by Mr. H. S. REESON and carried.

The CHAIRMAN, in a brief response, said that what the Directors valued most as a reward for what they had been able to do was the knowledge of the shareholders' recognition of that work, and of their warm expression of appreciation.

SHEFFIELD GAS COMPANY.

High-Pressure Mains and Bulk Supply.

The 129th Ordinary Meeting of shareholders of the Sheffield Gas Company was held on March 11 at the Company's Offices, Commercial Street, Sheffield; Lt.-Col. H. K. STEPHENSON, Chairman of the Company, presiding.

The CHAIRMAN, in moving the adoption of the report and accounts, said that the expenditure on capital account during the past year amounted to £9292, having an unspent balance of £13,694. The bulk of this expenditure was, as in the previous year, on account of extensions of mains. The revenue account showed a credit balance on the year's working of £168,460, as compared with £188,308 a year ago. An interim dividend at the rate of 6¼ p.ct. per annum was paid last September for the first half of the year, and it was now proposed to pay a final dividend at the rate of 6¾ p.ct. per annum for the second half, making 6½ p.ct. for the whole year. After paying interest and dividends as proposed and making provision for co-partners' bonus, the amount carried forward to the current year was £83,294, as compared with £85,973 a year ago.

Proceeding to deal with matters of wider interest to the gas industry, the Chairman said that at the annual meeting three years ago, when discussing the Electricity Bill, he remarked that by means of high-pressure mains gas was capable of almost precisely similar extension to that proposed for electricity, with corresponding reductions in price to country districts. The remedy was the same in both cases—viz., the distribution by large undertakings over a wide area. He also pointed to their five-mile extension to Dronfield as a small example of what could be done in this way. He again alluded to this matter at the shareholders' meeting in 1927, and last year he had said that the newspapers informed them almost daily that the various schemes for the distribution of electricity throughout the length and breadth of the land were rapidly approaching maturity, and in his view it was high time that by means of high-pressure mains gas should be distributed from large centres on a similar scale.

After last year's meeting their General Manager, Mr. Halkett, went to Germany to see for himself what was being done there in the way of carrying gas from the coal areas in large high-pressure mains in distant centres of population. What could be done in Germany could equally be done in England. Now, apparently (though the Sheffield Gas Company had been something like a voice crying in the wilderness), the authorities had awakened to the situation, and, in spite of the fact that it was late in the day, they were grateful.

COKE OVEN GAS.

The position was much the same, he continued, as regards coke oven gas. For something like a dozen years the Sheffield Gas Company had been taking coke oven gas in increasing quantities, till their arrangements now provided for a supply of 13 million c.ft. a day, and all this time most other gas undertakings had viewed the provision of gas by collieries with a suspicion almost amounting to dislike.

In both these matters the Sheffield Gas Company had done pioneer work, and in such circumstances it appeared more than strange that they should not have been invited to give evidence from their experience before the Fuel and Power Committee, nor to nominate a representative on the Area Gas Supply Committee now set up by the Board of Trade. What might be the reason for thus ignoring the undertaking which had the greatest experience in the use of coke oven gas they did not know.

It was at any rate satisfactory that the views so persistently put forward on behalf of the Board, both as regards long-distance transmission and distribution of gas by large undertakings and the utilization by gas undertakings of coke oven gas from collieries, were now endorsed in Government circles.

They hoped that before long the Board of Trade would have power to authorize the joint working of undertakings, and that greater facilities would be given for the supply of gas in bulk.

Coming back from the general to the particular, he was glad to be able to inform them that the arrangement for the purchase of coke oven gas from the Nunnery Colliery Company was now in operation, while the similar arrangement with Thorncliffe Coal Distillation, Ltd., would, they expected, be working in a few months' time, and orders were now being placed for laying the necessary main from the coke ovens at Smithy Wood to the Grimesthorpe Gas-Works.

PRICE REDUCTIONS: SPECIAL CONCESSION TO USERS OF GAS ENGINES.

After two substantial reductions in price made during 1927 the Chairman thought that their consumers must have been agreeably surprised at the further reduction made last July. This reduction ranged from 1d. per 1000 c.ft. for small consumers to 3d. per 1000 c.ft. for large industrial consumers.

In addition to these reductions, last December the Board decided to make a special concession to users of gas engines, and from the commencement of this year the charges for gas used for gas engines ranged from 2s. 9d. per 1000 c.ft. down to 1s., according to quantity.

This price, he said, was the lowest in the country, so it was satisfactory to report an increase in the quantity of gas sold during 1928 of 29,438,000 c.ft. as compared with 1927.

INDUSTRIAL AND DOMESTIC DEMAND.

The demand for gas for industrial purposes had been well maintained, but until there was a definite improvement in trade rapid progress could not be expected. More gas-fired furnaces had been fixed than during the previous year, and various solid-fuel furnaces had been converted to burn gas. The Company's furnace demonstration room had again proved its value, while the staff of experts had been able to render considerable assistance in the solution of heating problems.

To show the extent to which the Company's gas was now competing with solid fuel, he mentioned that during the past year several furnaces, consuming from 5000 to 6000 c.ft. of gas per hour, had been installed, while one furnace, consuming not less than 10,000 c.ft. of gas per hour, was then under construction.

In one week in February there was an increase of 20 p.ct. over the corresponding week of 1928, while on Feb. 17 there was an increase of no less than 31½ p.ct. over the same day of last year. At both the Neepsend and Grimesthorpe works old stoking machines had been replaced with others of a more modern type, and extensive alterations had been made in the coal-handling machinery with gratifying results. A contract had also been placed for six new purifiers to replace an equal number which were installed 45 years ago, and which were becoming obsolete and expensive to operate.

They would be glad to hear that in connection with the conference of public lighting engineers which was held in this city last July, when demonstrations of various types of street lighting were arranged, those sections of roads where gas was the illuminant evoked most favourable comments from the visitors, who came from all parts of the British Isles.

TRIBUTE TO GENERAL MANAGER AND EMPLOYEES.

He then expressed appreciation of Mr. Halkett's services as General Manager. The low price they were able to charge for gas, combined with an increase in dividend, was an eloquent tribute to his successful management. He had been loyally supported by his staff and by the general body of the Company's employees, all of whom, as co-partners, had reason to be satisfied with the results achieved.

Mr. ROBERT LEADER seconded the resolution, and the report and accounts were adopted.

The CHAIRMAN moved the declaration of a dividend for the half-year ended Dec. 31, 1928, of £3 7s. 6d. p.ct. on Classes "A," "B," and "C" stocks, now all consolidated stocks.

Mr. ROBERT LEADER seconded, and the resolution was carried.

Mr. RALPH HALKETT (General Manager and Secretary) acknowledged with gratitude, on behalf of the staff and employees, the Chairman's references to their loyalty and service during the year.

A vote of thanks to the Chairman concluded the proceedings.

GAS REGULATION ACT APPLICATIONS.

SPECIAL ORDERS.

Alton and District Gas Company, Ltd.

To authorize the Company to supply gas within the urban district of Alton, to extend the limits of supply within which they are permitted to supply so as to include certain parishes in the rural district of Alton, to make provision as to the price to be charged, to permit the Company to raise additional capital, and for other purposes.

Wateringbury Gas Company, Ltd.

To define the limits of supply, to empower the Company to purchase additional land, to authorize the raising of capital, to substitute the thermal basis of charge, &c.

DECLARATIONS OF CALORIFIC VALUE.

Ilkley Urban District Council.—500 B.Th.U. (in substitution for 560 B.Th.U.), as from July 1.

SECTION 1.

Carmarthen Gas Company.

The Order states that, after the 11th inst., the maximum price in respect of gas supplied by the undertakers shall be 20d. per therm.

THE BLOOMSBURY EXPLOSION.

Concluded Inquest on Post Office Linesman.

The Westminster Coroner, Mr. Ingleby Oddie, on March 11 resumed his inquest on Percy George Thrower, the G.P.O. linesman, of Peckham, S.E., who died in Charing Cross Hospital on Dec. 28 from the burns which he received in the Bloomsbury explosion on Dec. 20.

The CORONER said that it was obvious that there must be an inquest, because the man had not died a natural death. It was also obvious that it would be unnecessary for him to duplicate the inquiry that had been conducted by the Commission or to call the mass of evidence that had already been given before that Commission. He proposed to exhibit the minutes of the evidence taken before the Commission. He had made it his business to read through the 10,000 questions and answers, and he thought that he could in that way find a verdict on the complete evidence sufficient for the Court. No conclusion arrived at in his Court would be decisive or final, for those issues must eventually be decided in a Court of Law. Being satisfied himself that there was no evidence of gross and culpable negligence, he was entitled to conclude his inquiry that day.

Mr. A. T. Miller, K.C., appeared for the Gas Light and Coke Company, and Mr. Harold Murphy on behalf of the G.P.O.

Edward Francis Parker, employed by a firm of contractors, said that he had found an automatic type of cigarette lighter on the edge of a mound of débris 14 ft. or 15 ft. from the manhole on Jan. 10. The lighter was slightly damaged, and he did not think it had been there long.

Leonard Arthur White, a G.P.O. labourer, said that the lighter in question was like one he borrowed from Thrower, but he could not say whether it was his.

The CORONER, at the close of the evidence, said that he proposed, subject to anything that learned counsel or Mrs. Thrower might say, to conclude the inquiry. With regard to the nature of the gas that ignited, evidence had been given by experts, and he had followed it with great interest. Whether it was coal gas, sewer gas, or petrol vapour would be decided afterwards by the Commission. Having eliminated certain possible causes of the explosion, he was reduced to the theory that Thrower, when in the dark, realizing that there was a danger of being gassed, and wanting to get the job done quickly, lit his lighter.

A verdict of "Accidental death" was returned, and it was found that Thrower died from burns received at a time when an explosion of inflammable gases took place in a Post Office subway where Thrower was at work, and at a time when the gases were ignited by a petrol lighter lit by Thrower to enable him to find an electric plug in the dark subway to which he had, in the course of his duties, to attach a lead for an electric blower about to be used to ventilate that subway.

GAS AND THE COMMUNITY.

Address to Enfield Rotarians.

"The trade, good health, comfort, and well-being of each and every citizen of these Isles are in no small measure bound up with the great gas industry," said Rotarian Samuel B. Chandler, A.M.I.Mech.E., who addressed members of the Enfield Rotary Club on Tuesday, March 5, on "Gas and the Community."

Rotarian Chandler said the purpose of his remarks was to present a few particulars of the gas industry regarded as a public service, and to substantiate the claim made by the industry that gas supply really came within the category of "public utility services," and in its operation conferred enormous benefit to the public. It might be regarded as mainly a chemical industry, for in the carbonizing of coal (as dealt with on the gas-works) the raw material was subjected to a variety of processes which permitted the extraction from the heated matter of the very many bye-products, solid, liquid, and gaseous, such as coke, tar, ammonia, naphthalene, creosote, benzole, &c. At the present time, continued the speaker, about 17,700,000 tons of raw coal, 1,030,000 tons of coke, and 61,500 tons of oil were utilized in the gas-works of statutory undertakings every year, producing 297,700 million c.ft. of gas, together with over 200 million gallons of tar, 125,000 tons of sulphate of ammonia, and 11 million tons of coke and breeze. The gas passing through over 45,000 miles of main served some 8½ million consumers, whom it was estimated had in use over 5¾ million cooking stoves, and in addition gas fires, water heaters, and other appliances. For every ton of coal carbonized under modern gas-works conditions, 14,000 c.ft. of (500 B.Th.U.) gas, 13½ cwts. coke and breeze, 25 lbs. of sulphate of ammonia, and 10 to 12 gallons of tar were obtained.

Statutory undertakings, besides contributing approximately 3½ million pounds per annum in rates and taxes, excluding income-tax, and personal taxes, employed over 100,000 persons, and had a capital of approximately £178,000,000.

Between the years 1909 and 1929 there was an increase in gas output of over 64 p.ct.; in the number of consumers taking gas through ordinary meters of 54 p.ct.; and of those who utilized slot meters 99 p.ct. It would be realized that this growth in the output not only bore witness to betterment of the conditions of life, in the direction of employment and labour-saving devices, but must affect very considerably atmospheric conditions, inasmuch as they were nearing an age when gaseous and smokeless fuels were being so universally employed to give light, heat, and power necessary for the conduct of modern conditions of life.

GAS CHARGES AT STOCKTON.

At a meeting of the Stockton Town Council on Tuesday, March 5, the Gas Manager (Mr. W. W. Atley) reported that during January 76,098,000 c.ft. of gas were made against 71,696,000 last year, an increase of 6·14 p.ct.

The Gas Committee recommended that application be made for sanction to loans of £4000 for services and £5000 for gas cookers; also that a gas booster plant be installed at a total cost not exceeding £2455. It was further recommended that as from April 1 the price of gas be reduced by 2d. per 1000 c.ft., making it 3s. 2d. in Stockton and Thornaby, and 3s. 6d. and 4s. in the outside areas, except in Yarm, where the reduction will be 3d., making the price 4s. 8d. *less* 10 p.ct. discount for prompt payment. For quarterly consumptions ranging from 25,000 to 1 million c.ft., the reduction will range from 2d. to 6d. Through prepayment meters 22 c.ft. for one penny will be given in Stockton and Thornaby *less* 20 p.ct.; and 21 and 15 c.ft. outside, with discounts of 16½ and 32 p.ct. At Yarm 17 c.ft. will be given *less* 11 p.ct. discount.

The MAYOR (Alderman J. Goldston), commenting on the recommended reduction in the price of gas, said it represented a saving to consumers of between £4000 and £5000 a year. During the recent severe weather, he added, the consumption of gas was abnormal. For the seven days ended Feb. 18 the increase was 3½ million c.ft., representing an advance of 24 p.ct. on last year. The total increased consumption for February as compared with the corresponding month of last year was over 8 million c.ft., or 13·8 p.ct.

Councillor ALLINSON moved that the reduction of the price be 3d., and not 2d., and also that the proposal to take £2000 for the relief of rates be deleted. He alluded to the capital debt of £185,000 remaining on the undertaking, and remarked that they had already taken £214,000 from the gas profits for the relief of rates. He said that they were proposing to give £2000 to the relief of rates and yet borrow £9000 for gas-works purposes on which interest would have to be paid. He submitted it would be wiser to place the £2000 to reserve, or else give the consumers the benefit of it by lower charges.

After a long discussion, however, the amendment was defeated by 29 votes to 7.

COKE OVENS TO BE ERECTED NEAR LEEDS.

Leeds Corporation have been notified that the Ministry of Health have decided to allow the appeal of the Viceroy of India (Lord Irwin) and the Waterloo Main Colliery Company, Ltd., against the refusal of the Corporation to grant permission for the erection of coke ovens and a bye-product plant at Thorpe Stapleton. The appeal is allowed subject to satisfactory means being provided to prevent the emission of the gas and smoke evolved from the coke ovens during the period that the ovens are being charged.

In his covering letter, the Minister of Health states that the Ministry have carefully considered the representations of the City Council and the evidence submitted at the inquiry, and he appreciates that the City Council desired to preserve the amenities of the Templenewsam Park and mansion, and safeguard the health of the population of the district.

The Minister gathers, the letter adds, that in deciding the question whether permission should be given or refused for the erection of the ovens, the City Council were not aware that new and improved methods were proposed by the Company in the construction of their plant. He understands that it was intimated at the inquiry that if the Ministry felt satisfied that the works could be erected without detriment to the surrounding area, the City Council would not be opposed to their erection.

IMPROVED PROCESSES.

The Minister has considered the evidence given at the inquiry with regard to the improved processes to be adopted by the Company, and since the inquiry has been furnished with further particulars of the processes, and he has decided that if coke ovens are constructed with the precautions proposed there is no ground for apprehension that the conditions of the locality will be aggravated so as injuriously to affect the health of the community. The Minister has, therefore, come to the conclusion that the proposed development, subject to certain conditions, may be permitted, and he has accordingly decided to allow the appeal. After careful consideration of the matter, the Minister has decided to make no order as to costs.

It may be assumed from the particulars given in the Minister's letter that the attitude taken up by the Corporation was a reasonable one, having regard to the lack of knowledge of the coke oven plant at the time. At the inquiry it was stated that the principles of the proposed plant were quite different from those which had given apprehension, and improvements had been effected which were calculated to do away with the annoyance caused by the emission of sulphuretted hydrogen from coke ovens. It was submitted that this fact was news to the Corporation at the time of the inquiry. An expert agreed that there was nothing on the plan to indicate the strength of the Company's claim that no harm would be done.

The Company urged at the inquiry that the erection of the ovens was essential to the utilization of a large mineral area, and that upon the approval of the works hinged a very great scheme of industrial development to the east of Leeds, and the provision for many years to come of a large amount of employment. If the refusal were persisted in, it would, it was urged, deprive Leeds of 1½ to 2 million c.ft. of gas per day, and prevent the employment of a large number of men. The scheme involved the utilization, in conformity with the recommendations of the Commission on Coal, of a large amount of coal which would otherwise be unremunerative.

FIRE AT MANCHESTER GAS-WORKS.

Official Statement.

In view of the somewhat alarming statements which have been published in non-technical journals regarding the outbreak of fire at the Rochdale Road Gas-Works, Manchester, on Thursday, March 14, our Manchester representative has been supplied with the following official information. One of the mechanics engaged at the gas-works was inspecting the coal elevator, and in the course of the operations he was using a light from a flexible gas tube merely for visual purposes. The elevator, of course, was equipped with travelling buckets, and the joints where the buckets were held to the chain were well greased, so that the buckets would turn over easily of their own weight upon arriving over the coal hopper. Unknown to the mechanic, the flame from his gas jet came in contact with some of the grease, which caught alight. The flame travelled upwards from one bucket joint to the next, owing to the draught, the whole elevator acting in a similar manner to a chimney. The flames ascended to the top of the elevator and damaged a little of the woodwork attached to the steel roof, and also the motor which supplies the power for the elevator. Beyond this there was no structural damage, and the only physical injury was to the mechanic himself who sustained slight burns upon the hands in attempting to put out the flames in the first instance. The Manchester Fire Brigade arrived on the scene, and the fire was promptly extinguished. There was absolutely no interference with the supply of gas, and the workmen carried on their operations throughout the works as usual.

BUNGALOW TRAGEDY AT BIRMINGHAM.

Death Caused by Blocked Flue.

An inquest was held at Birmingham on Tuesday, March 12, on the bodies of Alfred George Harley (61), pencil case manufacturer, and Anne Harley (62), his wife, of 979, Pershore Road, Selly Park, who were found dead at their home on Feb. 17.

William Edward Flavell, builder, of 21, Kathleen Road, said he built the bungalow from plans approved by the city authorities. Good mortar was used, and the gas pipes were put in according to the by-laws. Witness said that on inspecting the fireplace in the bedroom after the bodies were found he saw that the back of the fireplace was built up solid to the bottom of the outlet of the gas fire. That was not in accordance with the plans, and who was responsible for it he did not know. The inside of the chimney was parged (plastered) in the usual way.

Walter Tinsley, a grate and range fixer, employed by Samuel Smith & Son, Beehive Foundry, Smethwick, stated that at the request of Mr. Harley he prepared the fireplace for a gas fire. He built up the back of the fireplace to the level of the outlet pipe of the gas fire, and in accordance with his usual custom he filled in all crevices so that no fumes could get out round the chimney piece. A hole was left in front of the grate tiles to let a pipe through the flue. Witness knew that a considerable quantity of parging always fell down a chimney, but he left no provision for that to be removed. He thought the gas fire should be moved occasionally to clear the parging.

Richard Gregory Marsh, Fittings Engineer to the Birmingham Gas Department, said he visited the bungalow on Feb. 19. He lighted the gas fire in the bedroom and immediately noticed a slight smell as if the products of combustion were being discharged in the bedroom. An investigation showed that the iron flue pipe was completely choked with fine sand, of which there was a considerable accumulation. That sand lay on the brick ledge on which the pipe from the gas fire rested. There was no pocket at all to take the accumulation of droppings down the flue, and therefore the material was directed right on to the opening of the fire. In reply to the Coroner the witness said there was no power to prevent anyone putting a gas fire in without any flue at all.

The CORONER: Do you think the authorities should have power to prevent this kind of thing, and to give you control over the flues for the use of gas fires?

Witness: Yes; it would be an advantage. Witness added that he inspected the gas fire in another bedroom at the house, and there he found the flue had been constructed similarly to the one he had described already. He also found an accumulation of fine sand which had dropped down the flue, and that fine sand, he believed, was parging from the walls of the chimney. Parging, said witness, was unnecessary for chimneys intended solely for gas fires. The products of combustion of coal gas were water vapour, carbon dioxide, and traces, according to the design of the grate, of carbon monoxide—a very poisonous gas. The gas fire in use in this bedroom was of an old type and less efficient than the later types. Such a gas fire would be positively dangerous with an obstructed flue and with inadequate ventilation.

Replying to the Coroner, witness said his Department had difficulty in inducing builders and architects to accept their suggestions. He thought statutory powers in this direction should be of great assistance.

William Edgar Ballard, City Building Surveyor, agreed with the evidence given by Mr. Marsh, and expressed the opinion that it would be well if powers were possessed by the Corporation for dealing with flues. A new by-law partly dealing with the construction of flues was now before the Ministry of Health, and it would compel people to make proper outlets from gas fires, though it would not specifically prevent the building-up of fireplaces at the back of the gas fires.

Prof. *Morrison*, of Birmingham University, said no gas-consuming apparatus should be present in any room unless there were efficient means of carrying away the products of combustion. He did not think the ventilation in this room would be sufficient to keep down the carbon monoxide below the danger point.

The CORONER said it was clear that both these persons died from carbon monoxide poisoning. There was no escape of gas into the house, and the carbon monoxide must have come from imperfect combustion due to the blocking of the flue. Unfortunately, the local authority had no by-law to compel people putting in a gas fire to see that the products of combustion were removed. There was also no power possessed by the local authority as to the construction of flues for gas fires. It was a very serious matter, and he hoped the Ministry of Health would approve the proposed by-laws dealing with this matter; but he felt that the proposed by-laws did not cover all the points raised at that inquiry.

A verdict was returned that death was due to accidental carbon monoxide poisoning, caused by the choking of a flue of a gas fire. The jury added a rider expressing the view that a by-law should be passed giving powers to the City Surveyor to inspect such flues before gas fires were fitted.

BARCELONA INTERNATIONAL EXHIBITION.

A special invitation is extended to British firms interested in the manufacture and uses of gas to become exhibitors at the International Exhibition, Barcelona, from May to December of this year.

Detailed arrangements are being undertaken by the township of Barcelona, which is defraying the expenses. The Exhibition has received the patronage of the King of Spain, and the Spanish Government are actively co-operating. A strong British Committee has been formed, including Sir Philip Cunliffe-Lister (President of the Board of Trade), Viscount Rothermere, Lord Kylsant, Lord Waring, Lord Riddell, Lord Melchett, Sir Charles Wakefield, Sir Arthur Balfour, Sir Auckland Geddes, Sir William P. Burton, Sir John F. Beale, and Mr. John Walter. The leading nations will be represented by exhibits; and one section is to be given over entirely to the display of the products of British firms.

The British Section Office of the Barcelona Exhibition is at 42, Pall Mall, London; and arrangements are being made, in addition, with the British Chamber of Commerce for Spain and the Spanish office of the Federation of British Industries, to put exhibitors in touch with reliable established firms likely to be interested in taking up their agencies. An extra inducement to British exhibitors is the opportunity that the Exhibition will afford for opening-up trade with the South-American Republics.

The British Section is to be housed in the International Pavilion, near the Stadium and the French and Italian buildings—one of the finest and most accessible sites in the Exhibition grounds.

Blackpool Gas Department Estimates.—The Blackpool Gas Department anticipate a net profit for the year just closing of £27,015 as against £12,980, the original estimate. The profits for last year included (gas) £33,116; and for next year the gas undertaking is expected to show a profit of £7201.

Rugby Stock Issue.—The issue of £25,000 5½ p.ct. perpetual debenture stock which Messrs. A. & W. Richards offered for sale by tender on behalf of the Directors of the Rugby Gas Company (see "JOURNAL" for March 6) was allotted at prices ranging from £105 per £100 down to the minimum of par.

Bussey Distillation Plant at Glenboig.—The Bussey Coal Distillation Company announces that progress in the erection of their plant at Glenboig, Glasgow, has exceeded expectations, and that the works will be in full operation early in May, instead of June, as formerly stated. The plant, which will treat 600 tons of coal a day, will be the largest in the world manufacturing smokeless fuel, oil, and gas under a low-temperature process.

Chesterfield Gas Undertaking.—The Chesterfield Corporation Gas Committee have decided that the proposed amalgamation of the gas and electricity showrooms be not proceeded with, as the scheme would be impracticable from a financial and economic standpoint. The Gas Committee have resolved to ask the Finance Committee to reconsider their estimate for street lighting, and to allow a further £1000 for this purpose during the year 1929-30.

Cleveland Institution of Engineers.—Mr. T. Bidulph Smith reviewed the possibilities of low-temperature carbonization of coal at a meeting of the Cleveland Institution of Engineers at Middlesbrough on March 11. He said that in past years glowing prospectuses, and the wholesale loss of very large amounts of money attracted by them, have placed low-temperature carbonization very much in a similar position in the mind of the general public to the search for the Philosopher's Stone. Developments during the past few years, however, had been such that it must be admitted the troubles of the early workers had been gradually but surely surmounted, and that the process was now undoubtedly a scientific possibility.

Portsmouth Social and Athletic Club Meeting.—At the Annual Meeting of the Portsmouth Gas Company's Social and Athletic Club, Mr. H. J. Hale was presented with a gold watch in appreciation of his twelve years' service to the Club as Hon. General Secretary, together with a cheque to purchase a suitable gift for his wife. In making the presentation, the President (Mr. T. Carmichael) stated that during Mr. Hale's period of office, the Club had been established on a very sound foundation, and the present happy position was a reflection of his activities. Mr. Hale suitably responded. The retiring Chairman, Mr. A. H. Mills, made the presentation of trophies; Mr. H. Ayling receiving a replica of the Company Sports Challenge Cup, and the Chief Offices the Rifle Challenge Shield. Mr. D. T. Marwick was elected Chairman for the ensuing year, with Mr. E. T. Stewart as Vice-Chairman, and Mr. A. D. Cassell as Hon. General Secretary and Treasurer.

GAS COMPANIES' RESULTS IN 1928.

A General Increase of Business.

EAST GRINSTEAD.

The Ordinary General Meeting of the East Grinstead Gas and Water Company was held at the offices of the Company, London Road, East Grinstead, on Wednesday, Feb. 27; Mr. W. H. Hills (Chairman) presiding. The Directors' report for the year ended 1928 contained the following: The receipts from gas and meter and stove rentals in 1928 amounted to £19,398; and from residual products £4312. After payment of the interim dividend, interest on debentures, and other fixed charges, the profit and loss account shows a balance of £10,080 available for dividends, from which the Directors recommend payments for the half-year ended Dec. 31 last of 5 p.ct. on the original "A" stock and "A" shares, and 3½ p.ct. on the "B" and "C" shares (*less* income-tax), which, with the interim dividend paid on Sept. 1 last, will make 10 and 7 p.ct. respectively for the year. This will absorb £2656, and leave a balance to be carried forward of £7423. During the year 1000 £10 "C" shares have been issued to meet the expenditure on the new coal carbonizing plant which has been erected, and was put to work on Oct. 1, 1928. It is giving very good results. The Chairman, in moving the adoption of the report and balance-sheet and the declaration of the recommended dividends, said that the deficit balance on capital account had been reduced during the year from £7505 to £3681, which latter figure was more than met by the sum held in reserve on current account. The number of consumers increased during the year by exactly one hundred; they installed 112 additional gas cookers, 119 fires, and 38 washing boilers. Three million c.ft. more gas had been made in 1928 with a consumption of 480 tons less of coal than in 1927. Turning to residuals, there was a reduction on the return from the sales of coke; the market for this fuel varying with the cost of coal, but there were big increases in the return for sales of tar and for sulphate of ammonia. The receipts for gas, as compared with 1927, were down by about £1300, but taking into consideration the big reduction in the price, the return was very satisfactory. The sales of gas amounted to close on 89½ million c.ft., an increase of 3·1 p.ct. on the year before. They hoped at an early date to open a new section in connection with the Gas Department, called the Gas Service Department, to undertake, free of cost to consumers, the maintenance of all gas apparatus. They would then receive free expert attention; the gas apparatus would be cleaned, regulated, and adjusted periodically; and renewals, such as mantles, globes, gas fire fuel, &c., would be supplied at the consumer's request, the only charge being made for goods supplied. They realized that the best results could only be obtained when gas apparatus and all renewals of the same were of a suitable and reliable quality and received periodical and regular attention. Mr. J. Donaldson seconded, and the meeting concluded with votes of thanks to Chairman, Secretary, and staff.

EAST SURREY.

The Ordinary General Meeting of the East Surrey Gas Company was held on Thursday, Feb. 28, at the Gas-Works, Brighton Road, Redhill; Mr. W. Lees Stenning, J.P. (Chairman), presiding. The Chairman, in moving that the report and statement of accounts be adopted, and that in respect of the half-year ended Dec. 31 last dividends be declared at the rates recommended (all *less* income-tax), said they were meeting for the first time as the proprietors of the East Surrey Gas Company, and he was sure they would give a cordial welcome to their new colleague, Mr. John Urquhart, late Managing Director of the Dorking Company, who joined them under the provisions of their new Order. They would be glad to know that the output of gas in their old area showed an increase of 1·51 p.ct. as compared with 1927. Some years ago they carried a high-pressure main from their Redhill Works as far as the Dorking site of Betchworth, and it was their intention to extend this main to the Dorking Works during the spring. This would enable them to supplement the supply of either district as might be required, and to manufacture at each works such quantities of gas as might be most economical. Their co-partnership fund continued to expand, and the number of co-partners now exceeded 200, including 30 of the employees at Dorking. Mr. W. H. Bennett seconded the motion. An Extraordinary General Meeting of the Company was then held, at which a resolution was moved by the Chairman, seconded by Mr. Harrie Stacey, and carried, authorizing the Company to raise, by the issue of redeemable or irredeemable preference stock, "C" stock, or redeemable or irredeemable debenture stock of the Company, any capital that remains to be raised under the authority of the East Surrey Gas Acts and Orders. The Chairman explained that under the Order of 1928 there was certain additional capital of the Company which they had power to raise from time to time, and they could not do that without their consent. This would give them the power when a favourable opportunity came of raising further capital. It meant a sum of £10,000 preference or ordinary stock, and a larger sum of debenture stock, the amount which the Board of Trade granted them after much consideration.

HASTINGS.

The 147th Annual Meeting of the Hastings and St. Leonards Gas Company was held at the Queen's Road Offices on March 7; Mr. W. J. Glenister (Chairman of Directors) presiding. The Chairman, moving the adoption of the report and accounts and recommendation that the final dividends for the year be paid, said there had been a tremendous increase in the sale of gas. For the first two months the sales were 14 p.ct. higher than for the corresponding two months the previous year. It had imposed a tremendous strain upon the Engineer (Mr. C. F. Botley) and the staff, but every effort had been made to fulfil their obligations to the consumers, and he thought the consumers would agree they had succeeded. The capital account showed that the expenditure had decreased by £3004. There had been a decrease in the cost of coal of £9659, and the future outlook as regarded coal was very favourable. Mr. Botley told him it was the most favourable since 1916. A decrease of £12,015 in private lighting was largely attributable to the reduction in the price of gas. There had been a £6098 decrease in the sale of coke. The reserve fund had been increased to £22,444. The general balance-sheet was very satisfactory, and he thought the shareholders would agree the Company's position was unchallengeable. Customers from Hastings and St. Leonards had increased by 613, and in the Battle district by 61. The Battle venture had been very successful from the first, and was still progressing. Since 1914 the Company's business had increased by 25 p.ct.; and this was very satisfactory considering there had been very little building done in the Borough during the period.

LITTLEHAMPTON.

A satisfactory state of affairs was reported by the Chairman (Mr. W. Harwood) at the Annual Meeting of the Littlehampton Gas Company, held on Feb. 22 at the Company's offices. The Chairman, moving the adoption of the annual report and balance-sheet, congratulated the shareholders on another large increase in the business of the Company. The increase in the sale of gas had been 5,257,400 c.ft., equal to 5·9 p.ct. There were 146 new consumers. During the year £10,000 "B" shares had been issued, which realized £11,431. The cost of coal, &c., this year was £11,715, a decrease of £2170. Receipts from the sale of gas amounted to £29,204, as against £29,210 in 1927; and as the Company reduced the price of gas by 1d. per therm at the end of 1927, the Chairman thought the matter was worthy of note. Residuals produced £4433, as against £5313 in 1927, a decrease of £975. The total expenditure amounted to £28,375, allowing £1135 for depreciation. The total receipts amounted to £34,718, leaving £6342 to be carried to profit and loss. A new and larger high-pressure main at a cost of £5500 was to be laid to Rustington, so as to give that portion of the Company's area at Angmering and Angmering-on-Sea an adequate supply and pressure to meet the increasing demands in those districts. The increase for January during the cold spell was about 1 million c.ft. A dividend was recommended on "A" shares of 11 p.ct.; on "B," of 8 p.ct.; on "C," of 5½ p.ct.; and 6 p.ct. on the preference stock, all *less* income-tax. Mr. John Langmead seconded the adoption of the report and balance-sheet, which was carried.

MARGATE.

The Annual General Meeting of the Isle of Thanet Gas Light and Coke Company, Margate, was held at the Company's Offices, the Dane, Margate, on Friday, Feb. 22; Mr. Walter Hills (Chairman) presiding. The Chairman, reviewing the results of the past year, said that the capital account had been increased by nearly £2000 on account of new meters, which showed a healthy expansion of trade. The quantity of gas made was just a little more than in 1927, but it was a source of considerable satisfaction to know that the quantity of coal used in producing this quantity was less, to the extent of 858 tons. The cost of coal was less by £5787, and, owing to satisfactory contracts having been entered into during last year, the average price per ton of these supplies worked out at a figure which was the lowest since the war. A credit balance of £18,322 had been transferred from the revenue account to the profit and loss account, as against £12,633 last year, and the balance of the net profit to be carried to the next account was £10,654, as against £5562 last year. The amount standing to the credit of superannuation fund was now £11,819, and during last year over £7000 of this amount was invested. A number of fresh records were created during 1928. Well over 2 million c.ft. of gas were made in one day, and no less than 92,000 c.ft. in one hour. They actually sent out 1,865,000 c.ft. in one day, and the daily output continued to grow. A further reduction in the price of gas, to take effect from the March quarter, to 8¼d. per therm, was announced, and this, with former reductions since October, 1927, represented a saving to consumers of £17,755. They would, during the current year, have the satisfaction of announcing a still further reduction to 8d. per therm, or 3s. or so per 1000 c.ft. In conclusion, the Chairman recommended the declaration of a final dividend of 4 p.ct., and congratulated the staff on their excellent service during the year.

NORTHWICH.

The Annual Meeting of the Northwich Gas Light Company was held on Monday, Feb. 25; Mr. C. T. Eachus (Chairman of Directors) presiding. The Chairman, in moving the adoption of the report and balance-sheet, said that the year's working had been satisfactory. New capital had been raised during the year to meet the Company's increasing business, and also a sum had been repaid to the bank on account of the money that had been borrowed from them for extensions, &c., carried out in the previous year. A contract for a new gasholder had been placed, as the existing holders were insufficient to cope with the present demands. During the year the quantity of gas sold was 99,483,000 c.ft., as against 88,456,000 c.ft., an increase of over 11 million c.ft. New apparatus had been fixed during the year—namely, 111 gas cookers, 59 wash boilers, 43 fires,

and 11 other pieces (geysers, radiators, &c.). Residual products showed a decrease due to reduction in prices. The revenue account showed a profit of £7518, and after paying interim dividends, interest on loans, there was, with the addition of the balance brought forward, a disposable balance of £7200. Mr. Hesketh seconded, and the accounts were passed. Mr. J. Moreland proposed, and Mr. E. Yarwood seconded, that dividends be declared at the rate of 4 p.ct. per annum on the preference shares (free of income-tax), 5 p.ct. per annum on the preference stock (*less* income-tax), and 7 p.ct. per annum on the ordinary stock (*less* income-tax) for the past half-year, which would absorb £2341, making, with interim dividends, 4 p.ct., 5 p.ct., and 6 p.ct. for the whole year respectively, and transfer to contingency fund £1000, also to reserve fund £1000, leaving a balance of £2858 to be carried forward. On the proposition of Mr. S. Rogerson, seconded by Mr. J. Carter, thanks were accorded to the Secretary and Manager and his staff, to which Mr. P. S. Welbourn replied on behalf of the staff and himself.

OXFORD.

The Annual Meeting of the Oxford Gaslight and Coke Company was held on Friday, March 1, when Alderman Dr. G. Claridge Druce, J.P., M.A., LL.D., F.R.S. (the Vice-Chairman), presided, owing to the absence through illness of the Chairman, Alderman F. W. Ansell, J.P. The Chairman, in moving the adoption of the report and statement of accounts, stated that during ten consecutive days they supplied as much as 50 p.ct. more gas as compared with last year, to meet the extra demand. The small increase in the supply of gas last year—3 p.ct. only—would be noticed; but with this had to be taken into account the mild weather. They had lost a considerable amount by the sale of residuals—viz., £13,700. Lastly, they would notice the reduction in price of gas; but he thought they would be quite satisfied with the total profit for the year of £43,000. Mr. Bradley seconded the proposition. The Chairman then moved that the full statutory dividend at the rate of 5 p.ct. per annum on the preference stock, and a dividend at the rate of 10 p.ct. per annum on the ordinary stock (both *less* income-tax) be declared for the half-year ended Dec. 31, 1928. Mr. Castle seconded. Mr. W. E. Caton (Engineer and Manager), replying on behalf of the staff and employees of the Company to a vote of thanks for their services during the past year, said that as usual he would like to give a few details of the working results which did not appear in the balance-sheet. During the year the number of new consumers had increased by 823, as compared with 771 for the previous 12 months. The number of additional cookers on hire and sold outright had increased by 927 as compared with 965 in 1927; and the number of gas fires on hire and sold outright had increased by 897 as compared with 1034 for the previous 12 months. The number of radiators, geysers, and circulators in use had increased by 222, while the number of slot installations fitted up had increased by 200 as compared with 38 in 1927. The quantity of gas sold last year exceeded that of 1927 by 20¾ million c.ft.—being an increase of 3 p.ct. So far this year the increased output had been over 40 million c.ft., or 23 p.ct. The Company then resolved itself into an extraordinary meeting to consider the proposed agreement for the transfer of the Abingdon Gas Light and Coke Company to the Oxford Company, and for the application to the Board of Trade under section 10 of the Gas Regulation Act for a Special Order to approve, among other things, the proposed amalgamation. After discussion the resolutions as proposed were unanimously approved and adopted.

RHYMNEY AND ABER.

The Directors of the Rhymney and Aber Gas Company, in their report for 1928, state that the amount expended on capital account was £5831, and, with the exception of £1370, the cost of an additional lift to the gasholder at Bargoed, which had doubled its capacity, practically the whole of this sum had been spent on new mains, services, and installing installations in premises. During the year some 492 new consumers were added. In addition to the new lift to the gasholder, the existing lift and crown were re-sheeted at a cost of £1650. The whole of this sum the Directors have decided to write off against revenue this year. The amount paid away in rates continues to increase. After deducting the items on the debit side of the profit and loss account, there is left a sum of £6777 available for dividend purposes. Out of this the Directors recommend the payment of the dividend on the 5 p.ct. preference shares for the half-year ended Dec. 31 last, and a dividend of 3½ p.ct. on the consolidated ordinary stock for the same period, which, with the interim dividend of 3½ p.ct. already paid, makes 7 p.ct. for the year. This will absorb £5868, leaving a sum of £908 to be carried forward to next year's accounts, subject to the payment of the bonus to the co-partners.

SOUTHGATE.

The sale of gas for the year by the Southgate and District Gas Company shows an increase of 1·63 p.ct. compared with that for the preceding year. After providing for interest and income-tax, &c., the balance of profit available for distribution is £19,132, from which interim dividends on account of the year ended Dec. 31, 1928, declared by the Directors, were paid on Sept. 4, 1928, at the following rates: On the preference stock 5 p.ct. per annum, and on the consolidated (7 p.ct. maximum) stock, 7 p.ct. per annum (all *less* income-tax); and the Directors now recommend the declaration of final dividends for the year ended Dec. 31, 1928 (all *less* income-tax), at the same rates. These appropriations (including the interim dividends) amount to £9875, leaving £9257 to the credit of the profit and loss account to be carried forward to the current year. During the year the sum of £42,154 was received in respect of issues of £28,000 consolidated (7 p.ct. maximum) stock and £12,500 5½ p.ct. redeemable debenture stock, the amount being credited to the capital account.

SOUTH SHIELDS.

The Annual General Meeting of the South Shields Gas Company was held at the Company's Offices on Tuesday, Feb. 26. Mr. Thomas Wallis, Vice-Chairman of the Company, presiding, in the absence of the Chairman, Sir James Readhead. The Chairman, in dealing with the accounts, remarked that £2861 had been charged to capital account during the year. This expenditure was incurred in providing extensions to mains, service pipes, and meters for additional consumers. The number of consumers at the end of the year showed an increase of 866 as compared with the previous year. In the revenue account the income from the sale of gas amounted to £91,500, the quantity sold being fully 531 million c.ft. The price of gas was reduced as from the March reading of the meters by ½d. per therm, or 2⅝d. per 1000 c.ft. The reductions given effect to during the year resulted in a saving to the consumers of approximately £5091. The income from residual products amounted to £28,250, being £3834 less than the previous year. The total income was £140,187, and the expenditure £118,146, which left a profit of £22,040, or an increase of £122 as compared with the previous year. The Chairman expressed appreciation of the services of Mr. D. Curry (Engineer and Manager) and Mr. A. Pickering (Secretary), and their respective staffs. Mr. Henry Chapman seconded, and the report and accounts were adopted without discussion. Mr. Henry Chapman moved that a dividend be declared on the consolidated and new stocks of the Company at the rate of 4¼ p.ct. for the half-year ended Dec. 31, making, with the interim dividend of 4¼ p.ct. paid in August, 8½ p.ct. for the year, and that a dividend be declared of 2⅞ p.ct. on the ordinary stock, making 5¾ p.ct. for the year.

STAMFORD (LINCS.).

Despite the increasing encroachment of lighting and heating by electricity in the town, the Stamford (Lincs.) Gas Light and Coke Company are able to report a most successful year's trading. The Company held its Annual Meeting on Thursday, Feb. 21, at which the Directors' statement of accounts, sponsored by Mr. James Ringham (Chairman), reported a profit on the year's working of £4308, with a balance on the profit and loss account (after payment of dividends, &c.) of £3691. The Directors had confidence in recommending, therefore, the confirmation of an interim dividend of 4 p.ct. (actual), *less* tax, which was paid on Sept. 1, 1928, and the payment of a final dividend of 7 p.ct. (actual), *less* tax, making a total of 11 p.ct. for the year. They also recommended the placing of £1000 to the reserve account, and reported that the price of gas had been further reduced during the year, and that the sales of gas showed the satisfactory increase of 5·6 p.ct. The report was adopted, and an expression of appreciation of the work of Mr. Bernard Clarke (Engineer and Secretary) and his staff was voiced.

SWINDON.

The Annual Meeting of the Swindon United Gas Company was held in the Company's new offices, Regent Street, on Thursday, Feb. 28; Major F. G. Wright, J.P. (Chairman and Managing Director), presiding. The Chairman said that the annual report showed a balance to the credit of the profit and loss account of £9226, and the Directors recommended the usual dividends of 4½ p.ct. on the preference shares, and 5½ p.ct. on the ordinary stock. The sales of gas during the year amounted to 268¾ million c.ft., which was 2½ million c.ft. less than in the previous year. That was attributable to the abnormal weather conditions during last summer, which were not favourable to gas consumption. The Chairman referred to the loss by death during the year of one of the oldest Directors, Mr. Amos Barns, and said Mr. E. W. Beard had been elected to fill the vacancy. Replying to a shareholder, the Chairman said he could hold out no hope of a reduction in the price of gas in the near future. The report was adopted.

TUNBRIDGE WELLS.

Continued progress, a sound financial position, and the important step taken in regard to the amalgamation with the Crowborough Company, were reported upon at the Annual General Meeting of the Tunbridge Wells Gas Company, held at the Offices on Friday, March 1, when Mr. Harold A. Beeching, the Chairman of the Directors, presided. The Chairman, in moving the adoption of the report and accounts, said that he was glad to be able to announce steady progress during the past twelve months, and that the Company was in a sound financial position. Notwithstanding the mild autumn and the slight decrease in the demand for gas during the latter part of 1928, sales for the full year showed quite a satisfactory increase of nearly 3 p.ct. During the recent cold spell, on one day over 2½ million c.ft. passed out, being 57 p.ct. increase on the corresponding day in 1927, thus breaking all records. The increase in consumption so far this year was more than twice the total increase for the whole of 1928. From Lady Day, 1928, the price of gas was reduced by two-fifths of a penny per therm, the price now being 9d. per therm (equivalent to 3s. 4½d. per 1000 c.ft.). Owing to this reduction, the Directors were able to declare an additional ½ p.ct. dividend for the past half-year. The revenue account showed that manufacturing costs had decreased by about £14,300, the cost of coal and oil being some £7500 less, while £6500 less had been spent on repairs and maintenance of works and plant. Distribution costs showed an increase of about £1300. Rates were slightly higher, but the assessments remained the same. There was a slight increase in the co-partnership bonus and pension funds, the latter now standing at £6677. The total expenditure was £101,430, leaving a balance of £19,174 to be carried to the credit side of profit and loss account—£900 more than in 1927. In consequence of the reduction in the price of gas the cash received was actually some £8000 less, though 77,000 more therms were sold. Rental of meters, cookers, and heaters showed a satisfactory increase, and testified to

the increase in the Company's business, and in the number of consumers, who now totalled 12,073. Largely owing to the lower price paid for coal, there was a drop in residuals of some £3200. They had sold over 10,000 tons of coke—an increase of 4000 tons over 1927—but cash receipts were £2000 less. Tar brought in some £1200 less, owing to the fall in prices. The Company had joined the South-Eastern Tar Association, and were not yet getting full results from this. Sulphate of ammonia showed a small increase. The total revenue during the year amounted to £120,604, or £10,860 less than in 1927; and the net result, after paying all fixed charges and dividends at the increased rate, left a sum of £14,635 to carry forward. The suspense account would, under the new Order, eventually be known as the renewal fund. Out of a total of 148 co-partners, no less than 113 now held stock in the Company. Councillor H. Thorpe formally seconded, and the meeting concluded with votes of thanks to the officers and staff of the Company.

WATFORD.

The Ordinary General Meeting of the proprietors of the Watford Gas and Coke Company was held at the offices of the Company on Thursday, Feb 28; Mr. Frank Harding Jones (Deputy-Chairman) presiding in the absence, through illness, of the Chairman (Mr. Edward J. Slinn). The Chairman, in moving the adoption of the accounts and the report of the Directors, said Mr. Slinn had asked him to draw attention to the fact that the sale of gas had increased by 46 million c.ft. during the year, which equalled 8 p.ct., and it had increased 200 million c.ft. per annum in the last seven years. The cost of coal and oil had gone down £8000, and residuals were down £5000. Leakages amounted to just over 5 p.ct. Capital expenditure was being kept within economical bounds. The Directors hoped that they would shortly be able to make a reduction in the price of gas, and the position of the Company was a very sound one. They had added £1600 to the special purposes fund, which now stood at £11,000. The year had been one of steady progress. Mr. Henry Brown seconded. In reply to a question concerning the proposed scheme of amalgamation with the St. Albans Gas Company, the Chairman stated that the matter was going along normally, and was still under the consideration of the Board of Trade.

WELLINGTON (SOMERSET).

At the Annual Meeting of the Wellington (Somerset) Gas Company, which was held on Feb. 25, the Chairman, Mr. F. Hugh Fox, J.P., C.C., stated that they had had a very successful year, and a record output. Though the balance at revenue account was less than the previous year, the Directors had decided, notwithstanding, again to reduce the price of gas. He considered that the new manufacturing, condensing, and steam raising plants would effect considerable economies, and believed that they would be well justified in granting a reduction in the price of gas in view of these economies. The balance of profits on revenue accounts was £2153, to which was added the sum of £2128, being the balance carried forward at the end of last year, making a total of £4281, from which had been deducted income-tax, £665, leaving a balance of £3615. An interim dividend was paid in July last year at standard rates amounting to £702, also debenture interest for 12 months, ended Dec. 31, 1928, amounting to £343. The Directors recommended the payment of a final dividend of 3½ p.ct. on the consolidated stock amounting to £982, leaving a balance of £1587. The Directors were pleased to report that the gas made was 55,300,000 c.ft., showing a substantial increase of 5,445,000 c.ft., or 10·9 p.ct., as against last year. The price of gas was reduced in March last by 2½d. per 1000 c.ft., and the Directors had decided to make a further reduction of 2½d. per 1000 c.ft as from the March 31 meter readings. To meet the very considerable growth in the Company's business, equal to 21 p.ct., during the past three years, and to provide for future demands, a new carburetted water gas plant had been installed, while the condensing and steam raising plants had been enlarged. These, together with other improvements, it was expected would reduce the manufacturing costs, and, at the same time, improve the supply and composition of the gas. The Chairman stated that the way the extensions had been carried out reflected great credit on the Engineer, and they were also indebted to the loyal co-operation of the staff and workmen.

WOKING.

In comparison with the half-year ended Dec. 31, 1927, the quantity of gas sold by the Woking District Gas Company shows an increase of 1,754,902 c.ft., or 2·16 p.ct., and receipts from sale of residual products show a decrease of £73. The net gain in consumers during the half-year is 130, and 409 cookers, gas fires, &c., have been fitted. The profit on the half-year's working, after charging interest on debenture capital and temporary loans and income-tax, amounts to £3267, which, with £4742 brought from the previous half-year, makes a disposable balance of £8010. It is recommended that dividends at the following rates be paid (*less* income-tax) on the preference and ordinary stocks, which will absorb £2651, and that £500 be transferred to reserve fund, leaving £4859 to be carried forward to the next account: On the "A" ordinary stock, 10 p.ct. per annum; on the "B" ordinary stock, 7 p.ct. per annum; on the "C" preference stock, 5 p.ct. per annum; and on the 8 p.ct. redeemable preference stock, 8 p.ct. per annum.

WOLVERHAMPTON.

The gross profit for the year of the Wolverhampton Gas Company is £29,535, out of which has been paid £6544 interest on debenture stock, the net profit being £22,990, to which is added £100, premium on National War Bonds redeemed. An interim half-year's dividend was paid on Aug. 29, 1928, at the following rates—viz., 3 p.ct. on the preference stock; 5½ p.ct. on the consolidated stock; 3½ p.ct. on the new ordinary stock; and the Directors recommend dividends at the same rates for the half-year ended Dec. 31, 1928 (all *less* income-tax). The payment of the two half-yearly dividends will absorb £18,174. They also recommend that the sum of £4915 be placed to the reserve fund. There has been a continued satisfactory increase in the sales of gas. The market prices of residuals have, however, fallen heavily, and there has consequently been a considerable decrease in receipts from these sources. The accommodation at the town offices has been inadequate for some years to deal with the Company's increasing business. New workshops and stores are therefore being erected and the showrooms re-modelled and brought more up-to-date.

COAL TRADE REPORTS.

From Our Own Correspondents.

NORTH-EAST COAST.

The position is becoming very difficult to weigh up, because the pressure for prompt supplies is so great that fancy prices are being offered when coals are available. Several factors are contributing to a position which can only be regarded as exceptional. Boats are now coming forward which were icebound on the Continent during the worst of the weather, and there is serious congestion at some of the shipping places. At the same time, output is still below normal, owing to sickness among the miners. With the Easter holidays so near, it appears likely that pressure will be maintained for a few weeks. Outputs are well sold for April in many instances, and collieries are quoting high prices. But reports show that supplies of Continental coal are now beginning to circulate, and buyers are not inclined to operate far ahead on the basis of to-day's prices.

Quotations for gas coals have had a hardening tendency, though the demand is not so insistent as for some other sorts. Wear Specials are nominally 15s. 6d. to 16s. f.o.b., and best qualities 15s. 6d. Seconds are quoting 15s. to 15s. 6d. Durham coking is very strong, and prompt supplies unobtainable. Collieries are quoting 15s. to 16s.; but odd lots coming on the market can obtain higher prices than these. Ordinary Durham bunkers ask 15s. to 16s., but best qualities are practically unobtainable for several weeks ahead, and as much as 17s. 9d. has been paid for odd spot lots. Best screened Northumberlands are nominally 16s. 6d. to 17s.

Gas coke is rather easier, but still quoted at round 21s. 6d. f.o.b. for shipment.

YORKSHIRE AND LANCASHIRE.

The demand for all classes of coal continues in excess of the supply, for although the pits are working better time many miners are still absent owing to illness. Prices, therefore, remain very firm. The export trade is particularly firm, and is likely to remain so. Buyers are showing more readiness to fix up their requirements for three or six months ahead. At the Leeds Exchange last week urgent inquiries for gas coke elicited no response. There is a steady improvement in the use of industrial fuel. The consumption of gas coal shows a considerable increase; but, apart from the best grades, supplies have proved adequate.

The following are the Humber bunker and export prices, f.o.b. usual shipping ports:

South Yorkshire—Hards, Association, bunkers 21s. 9d., export 19s. to 20s.; screened gas coal, export 18s.; washed trebles, export 19s.; washed doubles, bunkers 19s., export 18s. to 18s. 6d.; washed singles, export 16s. 6d. to 17s.; washed smalls, bunkers 15s. 9d., export 12s. to 12s. 6d.; rough slack, bunkers 14s., export 12s.; smithy peas, export 18s. to 18s. 6d.

West Yorkshire—Hartley's (f.o.b. Goole), bunkers 18s. 9d., export 17s. 6d.; screened gas coal, export 17s. 6d.; washed trebles, export 18s.; washed doubles, export 17s.; washed singles, export 16s.; washed smalls, bunkers 14s. 9d., export 11s. 9d. to 12s.; unwashed trebles, export 17s.; unwashed doubles, export 14s. 6d. to 15s.; rough slack, bunkers 14s., export 10s.; coking smalls, epxort 10s. 6d.

Derbyshire and Nottinghamshire—Top hards, bunkers 20s. 9d. to 21s. 9d., export 19s. to 20s.; cobbles, export 18s. to 19s.; washed trebles, export 18s. 6d.; washed doubles, export 17s. to 17s. 6d.; washed singles, export 16s. 6d.; washed smalls, bunkers 15s. 3d., export 12s.; unwashed doubles, export 16s.; rough slack, bunkers 13s. 6d., export 11s. to 11s. 6d.

Yorkshire, Derbyshire, and Nottinghamshire—Screened steam coal, bunkers 19s. to 20s., export 16s. to 18s.; gas coke, export 20s. to 24s.

MIDLANDS.

Collieries are hard at work overtaking the arrears which accumulated during the severe weather of February. With an 80 p.ct. quota this month pits under the Five-Counties control are endeavouring to make capacity output before Easter. Transport dislocations have been to a great extent overcome. Distributors complain, however, of difficulty in getting the coal through from the pit to its destination at a pace commensurate with demand owing to lack of co-ordination.

Market conditions are gradually becoming more settled. In few cases is there any noticeable subsidence of pithead prices which were advanced under the stimulus of last month's rush; but there is more regularity in retail prices. Trade in household coal, while still active, is now showing the effects of the advance of the season. The depletion of stocks is, however, an important factor in invigorating demand.

Pressure for delivery of industrial fuel is, generally speaking, attributable to the restrictive effects of the late weather more than to increased consumption. "D.S." nuts are urgently called for. Prices are very firm at 11s. to 13s. at the pithead. The larger quantities of slack which have accrued from the recent intensified activity in the domestic demand have brought about relaxation in the market. Prices range from 5s. 6d. to 9s. Fine slacks are on offer at very low rates.

Coke supplies the only instance of real stringency in the industrial range. The shortage in this direction is causing trouble at the furnaces and retarding expansion of pig iron production. It is doubtful if supplies could be obtained at 15s. at the ovens.

CURRENT SALES OF GAS PRODUCTS.

The London Market for Tar, Tar Products, and Sulphate.

LONDON, *March* 18.

A fair amount of business is reported in pitch, and the price is steady at not below 35s. per ton f.o.b. works.

Creosote is quiet at about 6¼d. to 6⅝d. per gallon.

Pure benzole is 1s. 11d. to 2s. per gallon; pure toluole, 2s. 1d. to 2s. 2d. per gallon; and 95/160 solvent naphtha, about 1s. 7d. to 1s. 8d. per gallon.

Pyridine bases is about 4s. 3d. per gallon.

Tar Products in the Provinces.

March 19.

There is no material change in the market for tar products.

Water-white products remain firm, and in particular solvent naphtha is in good demand.

The market for pitch is still very dull, and Continental consumers report that they are receiving offers for delivery for next season at very little over to-day's prompt prices.

Creosote is quiet, but without any great alteration in price.

There is a fair amount of inquiry for naphthalene of all grades.

Crude carbolic acid is quiet. Consumers are offering 1s. 10d. for delivery to the end of the year.

In cresylic acid there is a considerable quantity offering, and inferior grades are very difficult to sell.

There is little or no business doing in pyridine.

The average prices of gas-works products during the week were: Gas-works tar, 18s. to 23s. Pitch—East Coast, 31s. 6d. to 32s. 6d. f.o.b. West Coast—Manchester, 26s. 6d. to 27s.; Liverpool, 28s. 6d. to 29s. 6d.; Clyde, 28s. 6d. to 29s. 6d. Toluole, naked, North, 1s. 7½d. to 1s. 8¼d. Coal-tar crude naphtha, in bulk, North, 9d. to 10d. Solvent naphtha, naked, North, 1s. 3¾d. to 1s. 4¼d. Heavy naphtha, North, 1s. to 1s. 0½d. Creosote, in bulk, North, liquid, 3⅞d. to 4⅛d.; salty, 3½d. to 3⅞d.; Scotland, 3⅞d. to 4⅛d. Heavy oils, in bulk, North, 6d. to 6½d. Carbolic acid, 60 p.c., 1s. 10d. to 1s. 10½d. prompt. Naphthalene, £13 to £15; salts, £5 to £5 10s., bags included. Anthracene, "A" quality, 2½d. per minimum 40 p.c., purely nominal; "B" quality, unsaleable.

Benzole Prices.

The following are considered to be the market prices to-day:

	s. d.	s. d.	
Crude benzole . . .	1 0	to 1 1	per gallon at works
Motor ,, . . .	1 7	,, 1 8	,, ,, ,,
90 p.c. ,, . . .	1 9	,, 1 10	,, ,, ,,
Pure ,, . . .	2 0	,, 2 1	,, ,, ,,

TRADE NOTES.

Portable Electric Hoists.

Messrs. Herbert Morris, Ltd., of Loughborough, have recently issued a new booklet on the subject of portable electric hoists. The publication is complete with illustrations showing practical applications, together with technical data relating to speeds, dimensions, weights, &c.

Retort Renewals at Huddersfield.

Messrs. Robert Dempster & Sons, Ltd., Elland, have received instructions from the Huddersfield Corporation to rebuild, after 12 years' working, No. 3 bed of the "Dempster-Toogood" continuous vertical retorts at the Longwood Gas-Works. This opportunity is being taken of substituting 95 p.c. silica for the original siliceous retorts.

The Coventry Automatic Elevator.

The Coventry Chain Company, Ltd., have issued a pamphlet dealing with their automatic elevator and conveyor. This elevator has been designed for use in the "service" department of a leading London hotel, and is capable of handling trays 19 in. square, which can be fed automatically between angles carried by two sets of conveyor chains. The particular floor at which any tray will be discharged is governed by the spacing of certain withdrawal hooks which are mounted underneath the trays. The motive power is supplied by a 3-H.P. electric motor which drives through a "Coventry" quadruple reduction box, having a reduction ratio of 81:1. This reduces the speed to approximately 12 r.p.m., resulting in a conveyor speed of 30 ft. per minute. The spacing of the angles on the conveyor chain is 2 ft., and it is possible to carry a tray on every set of angles if required. The actual despatching is under the control of the operator, so that there is no danger of premature despatch. The application of this elevator is not restricted to hotels; it may, for instance, be used in bakeries, warehouses, and factories.

CONTRACTS OPEN.

Pipes and Fittings.

The Milton Regis Urban District Council invite tenders for the supply of wrought iron tubes and fittings. [See advert. on p. 822.]

Bombay Gas Company Report.—In their report for the half-year ended Dec. 31, 1928, the Directors of the Bombay Gas Company recommend the declaration of a dividend at the rate of 3½ p.c., making a total of 7 p.c. for the whole year, as against 8 p.c. last year.

Radiation Limited.

The report of the Directors for the year 1928, to be submitted at the meeting next Monday, states that, after bringing in £122,727 from 1927, the balance of the revenue account is £402,378. Deducting the interim dividends paid in October last, there remains at disposal £319,714, which the Directors recommend be appropriated as follows: To pay a final dividend of 3 p.c. on the preference shares, *less* income-tax, £26,100; a final dividend of £9 7s. 6d. p.c. on the ordinary shares, *less* income-tax, making a total gross dividend of 12½ p.c. for the year, £169,688; carrying forward £123,925. The Directors record with much regret the death of Mr. G. G. Brodie. As stated in a circular dated Oct. 3, the Board has been re-constituted during the year. Eight Directors retired, and three Directors—Sir David Brooks, Mr. C. Herbert Smith, and Sir Gilbert Vyle—were appointed to the Board. Extraordinary general meetings were held for the purpose of revising the Articles of Association of the Company, when provision was made for the annual retirement of one-third of the Directors liable to retire.

Reduction in Price at Peebles.—At a recent meeting of the Peebles Town Council it was decided to make a reduction in the price of gas for trade purposes of 5d. per 1000 c.ft. This reduction will make the price for industrial users 3s. 9d. per 1000 c.ft.

Presentations to Wellington Employees.—Presentations were made at the annual dinner of employees of the Wellington (Salop) Gas Company, by the Directors, at the Forest Glen on Saturday, March 9. Gold medals were given to nine employees who had completed 20 years' service with the Company, and the employees presented the Chairman of the Directors (Mr. C. W. Leake) with a case of pipes. The recipients of long-service medals with their length of service were: Thomas Dent (38 years); A. E. Parker (36 years); W. Mitchell (35 years); W. Hall (30½ years); J. Handley (29½ years); H. Blockley (27½ years); W. Brittain (27 years); H. J. Woodfine, Secretary and Manager (24 years); and T. Hughes (23 years).

Gibbons (Dudley), Ltd.—In the thirty-fourth annual report, dealing with the twelve months ended Dec. 31 last, the Directors state that the net profit for the year, after providing for depreciation, is £13,871, which, added to the amount brought forward from last year (£8580), makes a total of £22,451. Of this, the preference dividend and interim dividend of 3½ p.c. on the ordinary shares already paid (all free of income-tax), absorbed £6781, leaving to be now dealt with the sum of £15,670. The Directors recommend that a dividend of 4 p.c. per annum, free of income-tax, be paid on the ordinary capital, which, with the interim dividend, will make a total of 7½ p.c. for the year. During the year, Mr. W. M. Hughes resigned his seat on the Board, after over fifty years' service.

Further Chandelier Accident.—Still one more tragedy has occurred as a result of a faulty gas sliding chandelier, the victims being Miss E. Turner and Mr. E. Hughes, of Sparkbrook, Birmingham, who died subsequent to an explosion of gas in their house on Feb. 22. At the inquest, Mr. R. G. Marsh, Fittings Engineer to the Birmingham Gas Department, stated that the Department had been condemning such fittings as the one which had been the cause of the accident for the past twenty-five years. In this case, apparently, the chandelier had fallen, and it was possible, continued Mr. Marsh, for 100 c.ft. of gas per hour to have passed into the room throughout the night previous to the explosion. In reply to the Coroner's question as to whether the Department had any power to enforce the removal of such fittings from consumers' premises, Mr. Marsh said that they could only advise them to do so, and in many cases people refused to get rid of them. There were a thousand or so of these fittings still in use in the city. A verdict of "Accidental death" was returned.

Buxton Not to Relieve the Rates This Year.—The Chairman of the Finance Committee of the Buxton Corporation, in submitting estimates in connection with the gas undertaking, and announcing a reduction of 2s. 4d. in the £ in the rates for the coming year, mentioned that the gas undertaking which had always given generously for many years from their profits towards the relief of the rates, were not making a grant on this occasion. The reason for this was explained by the fact that the Gas Committee had substantially reduced the price of gas at the beginning of the year, and this meant a reduction in their income. They had also had a very bad market for residuals, which had resulted in much smaller receipts under these items. Further, they had laid down a number of new mains, and had bought an extensive stock of cookers, which altogether had necessitated an encroachment upon the surplus from which they as a rule contributed to the relief of the rates. They hoped, however, to be in a position to resume the contributions at no far distant date.

Bournemouth Co-Partners' Meeting.—The annual gathering of the co-partners of the Bournemouth Gas and Water Company took place in the Town Hall, Bournemouth, recently; the Chairman of the Company, Mr. W. Cash, presiding. First of all, Mr. Cash distributed long service medals to 29 employees who had qualified during the year 1928, while he himself wore a similar token which spoke of 25 years' association with the Company. The Chairman then proceeded to give some interesting figures concerning the progress of the Company. During the first two months of the year the output had increased by 90 million c.ft., and up to date the increase for this year had been 120 million c.ft. Dealing with matters concerning the co-partnership scheme, Mr. Cash went on to say that the bonus for 1928 was 8½ p.c. for the half-year to June 30, and 9 p.c. to Dec. 31. The total amount of the bonus was £10,093, which was divisible between 691 members, while the bonus account had reached a figure of over £03,757. The total funds, savings, and bonuses from July 1, 1908, to Dec. 31, 1928, amounted to the sum of £107,965.

STOCK AND SHARE LIST.

[For Stock Market Report, see earlier pages.]

Issue.	Share.	When ex-Dividend.	Dividends. Prev. Hf.Yr	Dividends. Last Hf. Yr.	NAME.	Quotations. Mar. 15.	Rise or Fall on Week.	Transactions Lowest and Highest Prices.
£			%p.a	% p.a.				
171,978	Stk.	Feb. 7	5	5	Aldershot 5 p.c. max. C. .	70—75	..	..
412,992	,,	,,	4	4	Do. 4 p.c. Pref. . .	73—76	..	75
1,551,868	,,	Sept. 27	7	7½	Alliance & Dublin Ord. .	99—102	..	100—101
374,000	,,	Jan. 10	4	4	Do. 4 p.c. Deb. . .	63—66	..	..
522,655	,,	Mar. 7	7	7	Barnet Ord. 7 p.c. . . .	112—115*	..	114
800,000	1	Oct. 11	1/7½	1/4½	Bombay, Ltd.	20/—22/-	..	..
173,500	10	Mar. 7	8½	9	Bournemouth 5 p.c. . .	12½—13½*	..	..
500,050	10	,,	7	7	Do. B 7 p.c. . .	12½—12¾*	..	12¾—£12/11/9
439,160	10	,,	6	6	Do. Pref. 6 p.c. .	10¾—11½*	..	..
50,000	Stk.	Jan. 10	3	3	Do. 5 p.c. Deb. .	55—58	..	..
162,025	,,	,,	4	4	Do. 4 p.c. Deb. . .	74—77	..	..
357,900	,,	Aug. 30	7½	7½	Brighton & Hove 6 p.c. Con.	115—118	..	..
371,880	,,	,,	6½	6½	Do. 5 p.c. Con.	101—104	..	..
1,287,500	,,	Feb. 21	5	5	Bristol 5 p.c. max. . . .	89—90a	—1	..
885,000	,,	Sept. 27	7	8	British Ord.	117—120	..	119—120½
100,000	,,	Dec. 20	7	7	Do. 7 p.c. Pref. . . .	115—120	..	..
190,000	,,	,,	4	4	Do. 4 p.c. Red. Deb. .	73—76	..	..
200,000	,,	,,	5	5	Do. 5 p.c. Red. Deb. .	93—96	..	..
100,000	10	Dec. 6	8	6	Cape Town, Ltd. . . .	8-9	..	8½
100,000	10	Oct. 25	4½	4½	Do. 4½ p.c. Pref. . .	6¼—7¼	..	..
150,000	Stk.	Dec. 20	4½	4½	Do. 4½ p.c. Deb. . .	73—78	..	..
898,860	,,	Feb. 21	6	6	Cardiff Con. Ord. . . .	97—100	..	..
187,860	,,	Jan. 10	7½	7½	Do. 7½ p.c. Red. Deb. .	100—103	..	..
157,150	,,	Feb 21	5	6½	Chester 5 p.c. Ord. . . .	87½—92½b	..	..
79,185	1	Oct. 11	1/2/-	1/2/-	Colombo Ltd. Ord. . . .	36/—38/-	..	..
24,495	1	,,	1/4½	1/4½	Do. 7 p.c. Pref. . .	21/—23/-	..	..
875,402	1	Oct. 11	1/9½	1/9½	Colonial Gas Assn. Ld. Ord	24/6—26/6	..	..
187,848	1	,,	1/7½	1/7½	Do. 8 p.c. Pref.	21/—23/-	..	..
2,078,280	Stk.	Feb. 21	5	7	Commercial Ord.	98—101	..	98—98½
475,000	,,	Dec. 20	8	8	Do 8 p.c. Deb. . .	56—59	..	56½
800,000	,,	Sept. 27	11	11	Continental Union, Ltd. .	123—128	..	123—126
200,000	,,	,,	7	7	Do. 7 p.c. Pref. . .	123—128	..	125—126
787,550	,,	Feb. 21	7	7	Croydon sliding scale . .	109—112	..	110½—111½
408,100	,,	,,	5	5	Do. max. div. . . .	83—86	+1	84½
542,270	,,	Mar. 7	7	10	Derby Con.	112—117c*	..	..
55,000	,,	Dec. 20	4	4	Do. Deb.	70—72c	..	..
909,000	,,	Mar. 7	5	5	East Hull Ord. 5 p.c. . .	73—75*	..	..
1,002,180	10	Sept. 13	†6	†4	European, Ltd.	19—21	—3	19½—23
18,705,480	Stk.	Feb. 21	5½	5½	Gas Light & Coke 4 p.c. Ord.	18/9—19/3/	—/3	18/9—19/1½
2,600,000	,,	,,	8½	8½	Do. 8½ p.c. max. . . .	64—66	..	64
4,187,020	,,	,,	4	4	Do. 4 p.c. Con. Pref. .	76—79	—1	76—77
5,609,630	,,	Dec. 20	8	8	Do. 8 p.c. Con. Deb. .	58—61	..	59—60
3 649,770	,,	,,	5	5	Do. 5 p.c. Red. Deb. .	98—101	..	99—101½
92,500	,,	Aug. 30	6½	7	Hastings & St L. 5 p.c. Conv	96—100	..	..
258,740	,,	,,	5½	5½	Do. 3½ p.c. Conv.	75—80	..	..
70,000	10	Oct. 11	†10	†10	Hongkong & China, Ltd. .	13—14	..	..
313,200	Stk.	Mar. 7	6½	6	Hornsey Con. 3½ p.c. . .	86—89*	..	..
1,976,000	,,	Nov. 8	10	10	Imperial Continental Cap.	390—410	..	372—408
229,180	,,	Feb. 7	8½	8½	Do. 8½ p.c. Red. Deb.	69—72	..	..
235,249	,,	Mar. 7	7½	8	Lea Bridge 5 p.c. Ord. . .	117—120*	..	..
2,145,907	,,	Feb. 21	6½	6½	Liverpool 5 p.c. Ord. . .	94—95b	+½	..
600,000	,,	Sept 27	7	7	Do. 7 p.c. Red. Pref.	102—104b	..	..
185,786	,,	Feb. 21	9	8	Maidstone 5 p.c. Cap. . .	124—129	..	128—128½
63,480	,,	Dec. 20	3	3	Do. 3 p.c. Deb. . .	54—57	..	..
75,000	5	Dec. 6	†8	†8	Malta & Mediterranean .	6½—6¾	..	..
392,000	—	—	—	—	Metrop't'n (of Melbourne) 5½ p.c. Red. Deb. . . .	100—102	..	101½
841,920	Stk.	Nov. 22	†7	†5	Montevideo, Ltd. . . .	101—103	..	..
2,981,315	,,	Feb. 21	5	5½	Newcastle & Gateshead Con.	17/—17/6d/	-/1½	..
662,856	,,	,,	4	4	Do. 4 p.c. Pref. .	72½—73½d	..	..
891,705	,,	Dec. 20	8½	8½	Do. 8½ p.c. Deb. .	68½—69½d	..	..
131,780	,,	Mar 7	7/1/0	7/1/0	North Middlesex 6 p.c. Con.	100—105*	..	..
900,000	,,	Nov. 22	7	9	Oriental, Ltd.	116—120	..	..
186,150	,,	Dec. 20	7½	8	Plym'th & Ston'house 5 p.c.	108—111	..	..
424,416	,,	Feb. 21	7½	8½	Portsm'thCon.Stk.4p.c.Std.	113—118	..	117½
241,446	,,	,,	5	5	Do. 5 p.c. max.	81—84	..	..
9,334,464	1	—	—	—	Primitiva Ord.	31/—33/-	—2/-	31/3—34/-
244,500	100	Dec. 8	4	4	Do. 4 p.c. Red. Deb. . .	91—94	..	..
695,000	Stk.	Jan. 24	4	4	Do. 4 p.c. Red. Deb. 1911	78—80	..	79½
416,945	,,	Dec. 20	4	4	Do. 4 p.c. Cons. Deb. . .	78—80	..	..
150,000	10	Sept. 27	6	8	San Paulo 5 p.c. Pref. . .	8¾—8¾	..	..
1,736,968	Stk	Aug. 30	—	—	Sheffield Cons.	106—108e	..	..
95,000	,,	Jan. 10	—	—	Do. 4 p.c. Deb. . . .	74—77e	..	..
90,000	10	June 14	†3	†4	South African	4—6	..	..
6,609,895	Stk.	Feb. 21	5	7½	South Met. Ord.	106—108	..	106½—107½
500,000	,,	,,	6	6	Do. 6 p.c. Irred. Pf.	108—111	..	..
1,895,445	,,	Jan. 10	8	8	Do. 8 p.c. Deb. . .	58—60	—1	58½—59
784,000	,,	Mar 7	6½	6½	Do. 6½ p.c. Red. Db.	99—101*	..	..
91,500	,,	Mar. 7	8½	8½	South Shields Con. . . .	105½—107½d*	..	..
1,543,795	,,	Feb. 21	6½	6½	South Suburban Ord. 5 p.c.	107—110	..	..
468,537	,,	Dec. 20	5	5	Do. 5 p.c. Deb.	98—101	..	..
647,740	,,	Mar. 7	5	5	South'mpton Ord. 5 p.c.max	76—78*	..	..
121,375	,,	Dec. 20	4	4	Do. 4 p.c. Deb.	72—75	..	..
250,000	,,	Feb. 21	7	7	Swansea 7 p.c. Red. Pref. .	100—102	..	..
900,000	,,	Dec. 20	6½	6½	Do. 6½ p.c. Red. Deb.	100—102	..	..
1,005,375	,,	Mar. 7	—	6½	Tottenham District Ord. .	100—103*	..	102½—102½
150,000	,,	,,	5½	5½	Do. 5½ p.c. Pref.	95—98*	..	..
181,358	,,	Dec. 6	4	4	Do. 4 p.c. Deb.	75—78	..	..
289,094	,,	Mar. 7	6½	7	Uxbridge, Maidenhead, & Wycombe 5 p.c. . . .	93—98*	..	..
88,880	,,	,,	5	5	Do. 5 p.c. pref. .	85—90*	..	..
80,000	..	Feb. 21	8½	9	Wandsworth, Wimbledon, and Epsom— Wandsworth A 5 p.c. .	147—152	..	..
355,636	,,	,,	7½	7½	Do. B 8½ p.c.	125—130	..	..
432,595	,,	,,	6½	6 5/6	Do. C and New	102—107	..	104—105
262,000	,,	,,	7½	7½	Do. Wimbledon 5 p.c. .	115—120	..	..
98 000	,,	,,	7½	7½	Do. Epsom 5 p.c. . .	125—130	..	..
200,000	,,	,,	5	5	Do. 5 p.c. Pref . . .	90—95*	..	..
88,416	,,	Dec. 20	8	8	Do. 8 p.c. Deb. . . .	56—59	—1	56
284,748	,,	,,	4	4	Do. 4 p.c. Deb. . . .	77—80	..	..
207,500	,,	,,	5	5	Do. 5 p.c. Deb. . . .	97—100	..	..

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During the year considerable reduction had been made in the price of gas, so that the company had received a decreased amount for a much larger quantity of gas sold, in spite of which they were paying their full dividends and carrying forward a slightly larger sum than last year
Mr. WALMSLEY: It might be opportune for me to say at this stage that in spite of the extraordinarily severe weather during the past week, our consumers without exception have had a full and adequate supply of gas.
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Before this plant was installed, at a time such as this, we should have been inundated with complaints due to frozen services and pipes blocked with naphthalene. We have only had an average of three per day all through this severe weather.
When you come to reckon the convenience, and non-annoyance of our consumers, and the keeping up of an uninterrupted service, I think this plant is one of the best investments the Company has ever made. To be rid of 150 to 200 complaints per day and to get that down to one or two is very remarkable.
Mr. FENNER at this stage asked certain questions as to Mr. Hawksley being able to attend the Meetings of Directors, in view of the fact that he has now taken up his residence in the South of England, and suggesting the Directors might take into consideration the appointment of another Director.

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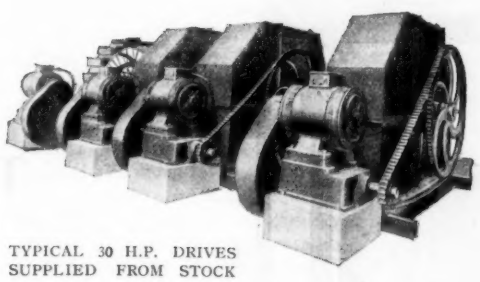

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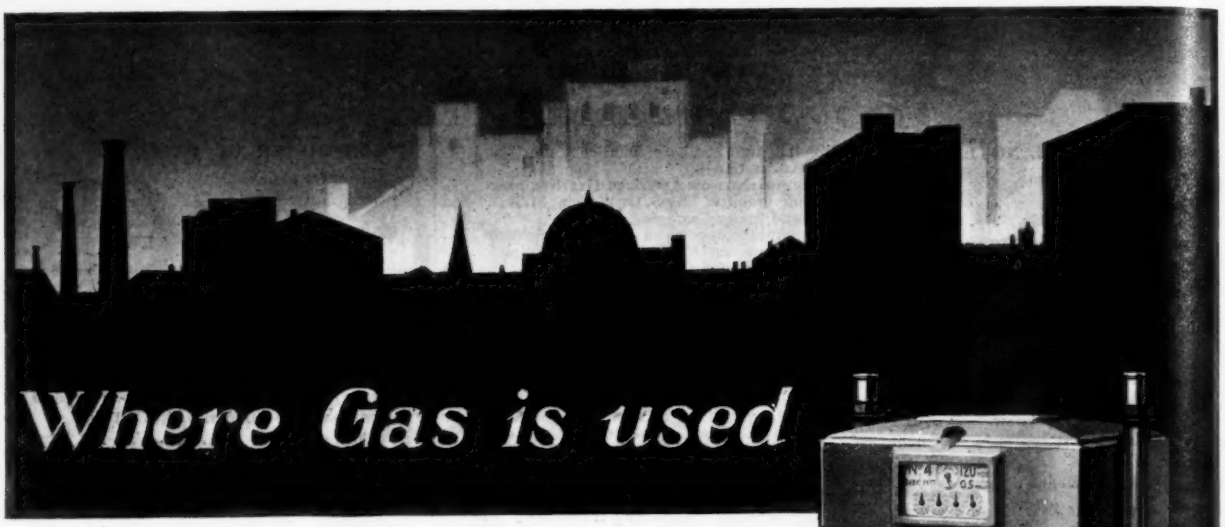

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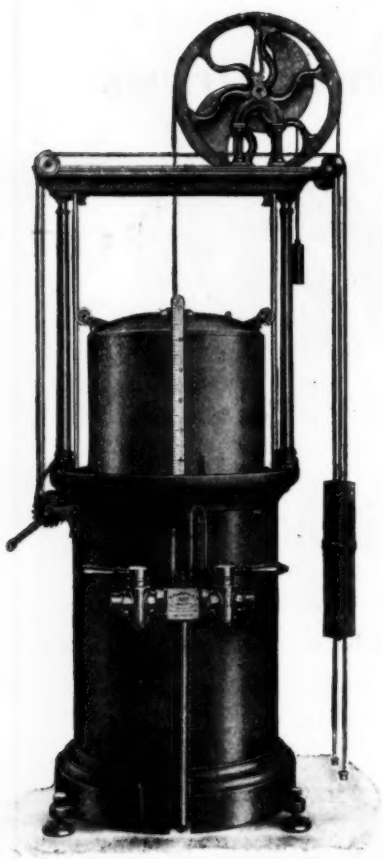

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